

The Chemical Age

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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Coke Ovens and Gasworks

THE visit last week of the Coke Oven Managers' Association to the Beckton works of the Gas Light and Coke Co. is a welcome sign of a closer and more sympathetic understanding between the principal two bodies concerned in the carbonisation of coal, whose main difference, in fact, is that in the one case metallurgical coke is the primary product, and in the other gas for lighting, heating, and power. Sir D. Milne-Watson emphasised quite frankly the need of a good understanding, and his general proposition that if the gas companies meet the coke oven people in the matter of gas they must receive corresponding consideration in regard to coke was very fairly met by Mr. R. Ray, the president of the other body. The latter incidentally paid a marked compliment to the part played by chemical research in the maintenance and development of the gas industry. One might infer from his tone that the coal owners, who are behind the coke oven managers, have a good deal to learn from the leaders of the gas industry in this vital matter, and that their technical managers would willingly undertake their instruction.

The visit was notable for the spirited protest made by Sir D. Milne-Watson against the action of the

Minister of Transport in "boosting," as he called it, the electricity industry against the gas industry. To legitimate competition between the industries, by which the public always stands to benefit, there can be no objection, nor was any such objection taken by Sir David. His point was that Ministers of the Crown in their public utterances should be careful not to take sides, and especially to see that their knowledge of technical industries, when they deal with them in public, is accurate. The warning may do good in checking some of the remarkable claims put forward by persons in semi-official positions on new processes and developments, of which low temperature carbonisation may be mentioned as one.

Service Records in Industry

THE remarkable records of long service to which prominence is given in the I.C.I. Magazine for November constitute the best evidence that could be furnished of the good relations existing between the company and their employees. Length and continuity of service appear to be a common characteristic, not merely of the original constituent companies, but equally of the numerous additional undertakings now incorporated with them. The periods recognised by the presentation to workers of silver medals and watches, gold medals, and gold medals and watches, vary from 25 years to as many as 64 years, and the number of cases in which the half century has been exceeded is creditably large. The presentations recorded in this month's issue, in fact, suggest that the output is almost enough to justify a watch and medal manufacturing department. It is worth noting, too, that the presentations were not left to the heads of departments; they were taken part in by Sir Harry McGowan, Sir Max Muspratt, and other members of the central board, and the personal contacts thus created mean a great deal in the personal relations of the parties. So, too, does the attention given to ambulance, first aid, and general welfare work and the numerous social and sport organisations. All this tends to build up what industry most needs—a real community spirit and the sense of a vast fellowship of work.

The first stages of removal to the new I.C.I. building on the Thames Embankment, near Westminster, have been already entered on. "It will not be long," it is stated, "before this great building on the banks of the Thames has a real significance to thinking men and women in every I.C.I. factory and office. Its great size is a sign of the innumerable ramifications of our company; to every worker, from Cornwall to Scotland, from China to Chile, Imperial Chemical House is a symbol of the solid stability which has been achieved by good management, high technical skill, and willing co-operation between employers and workers."

The Glycerin Situation

THE paper on "Glycerin and Its Substitutes in Industry," read this week by Messrs. Darke and Lewis before the Bristol Section of the Society of Chemical Industry, came at a very opportune moment. The glycerin industry, for a variety of reasons, has been facing a very difficult position, and it is interesting that the authors of the paper to which reference has been made take an optimistic view of the situation. Most of the alarmist statements on the subject which have appeared latterly have originated in the United States. In the first place, the growing use of ethylene glycol and its derivatives has been represented as an acute threat to glycerin. In part, glycol in the United States is devoted to such purposes as an "anti-freeze" for motor-car radiators, a need which rarely or never arises in this country. Furthermore, although glycol is being substituted for glycerin for various purposes, the latter still continues to hold the field in most of the provinces which have always been its own. It is, incidentally, a rather remarkable coincidence that apart from the development of ethylene glycol, yet another apparent threat to the production of glycerin from oils and fats should also appear in the United States, namely, a cheap method of producing it from another source, which is said to be receiving application on a very large scale.

European glycerin producers might do worse, in this matter, than take a leaf out of America's own book. A feature of American industry in the last few years has been the resource shown in the utilisation of waste products and the discovery of new uses for products already in wide use. It is more than likely that extensive applications for glycerin in fields hitherto undreamt of (especially, perhaps, for the purposes of synthetic chemistry) could be found if search were made for them. An organised investigation on the subject, at the cost of a few thousand pounds, would, if successful, repay itself a hundredfold in a very short time. It would, moreover, be the best of all possible retorts to America.

A Successful Club Meeting

THE annual meeting of the Chemical Industry Club this week was generally regarded as one of the best in the ten years' history of the institution. There was no criticism, but many appreciations of the good management of the Club, and of the improvements effected during the past twelve months. The only matter that exercised the members' minds was how the advantages offered by the Club can be made more widely known to chemists, and more fully utilised. As it stands, however, the Institution has a sound membership of 736, and its finances are quite sufficient to meet all requirements for some time to come. The acceptance of the presidency by Lord Melchett marks the final recognition of the Club's position in chemical industry, and the institution is particularly happy in retaining the undiminished interest of those who worked so hard to found it. Dr. Tripp, who retired from the hon. secretaryship after five years' service, bequeathed in his retiring speech an admirable statement of the Club's policy which might well stand as its charter. Mr. A. J. Chapman, who succeeds him,

enters on his duties with the confidence and good wishes of all the members.

Books Received

A SURVEY OF NITROCELLULOSE LACQUER. By Bruce K. Brown and Francis M. Crawford. New York: Chemical Catalog Co. Pp. 368. \$7.50.

The Calendar

Nov.		
5	Huddersfield Textile Society: "Artificial Silk." A. B. Shearer. 7.30 p.m.	Technical College, Huddersfield.
5	Society of Chemical Industry: "The Manufacture of Red Oxide by the Neill Process." J. Arthur Reavell. 8 p.m.	Burlington House, Piccadilly, London.
5	Institution of the Rubber Industry: "Recent Progress." Dr. T. J. Drakeley. 7.30 p.m.	Lever House, New Bridge Street, London.
6	Institute of Metals (Birmingham Section): "Drop Forging and Machine Forging." F. W. Spencer. 7 p.m.	Engineers' Club, Waterloo Street, Birmingham.
6	Institute of Metals (North East Coast Section): "Deformation of Metals." Professor C. H. Desch. 7.30 p.m.	Armstrong College, Newcastle-on-Tyne.
6	Sir John Cass Technical Institute: Lectures on Chemical Plant. IV.—Centrifuges and Hydro-extraction. Brian L. Broadbent. 7 p.m.	Jewry Street, Aldgate, London.
6	Mineralogical Society. 5.30 p.m.	London.
7	Royal Society of Arts: "Fifty Years of British Industry." Sir George Sutton. 8.30 p.m.	John Street, Adelphi, London.
7	Society of Public Analysts. 8 p.m.	Burlington House, Piccadilly, London.
7	Leicester Literary and Philosophical Society (Chemistry Section): "The Role of the Halogens in Organic Chemistry." Dr. L. Hunter. 8 p.m.	Museum, Princess Road, Leicester.
7	Institution of Chemical Engineers: Annual President's Reception. 8.30 p.m.	Princes' Galleries, London.
7	Society of Chemical Industry and Institution of the Rubber Industry: "Electrical Insulating Materials from a Chemical Standpoint." W. H. Nuttall. 7.15 p.m.	Royal Philosophical Society, Glasgow.
8	Oil and Colour Chemists' Association: "Radium with special reference to Luminous Paints." A. T. Parsons. 7.30 p.m.	30, Russell Square, London.
8	Institute of Metals (London Section): "The Plastic Contour." Professor W. E. Dalby. 7.30 p.m.	Royal School of Mines, South Kensington.
8	Optical Society: Ordinary meeting. 7.30 p.m.	Imperial College of Science and Technology, London.
8	Society of Dyers and Colourists (West Riding Section): "Emulsions, their Scope and Application." W. E. Billingham. 7.30 p.m.	Bradford.
8	Society of Dyers and Colourists (Midlands Section): "Human Factor in the Dyehouse." F. Platt. 7.30 p.m.	University College, Nottingham.
9	Institute of Metals (Sheffield Section): "Flow in Metal Shaping Processes." Professor F. C. Thompson. 7.30 p.m.	University, Sheffield.
9	Oil and Colour Chemists' Association (Manchester Section): "Nitro-cellulose Finishes." Bertram Campbell. 7.30 p.m.	Milton Hall, Deansgate, Manchester.
9	Faraday Society: 25th Anniversary of the Foundation of the Society. "Some Debatable Problems in Physics." Sir Oliver Lodge. 3.30 p.m.	Royal Institution Lecture Theatre, Albemarle Street, London.
9	Annual Chemical Dinner. 7 for 7.30 p.m.	Connaught Rooms, London.

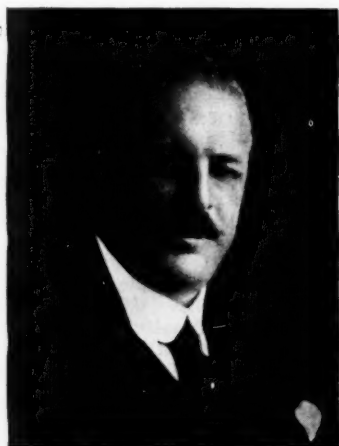
Officers of the Chemical Industry Club, 1928-29



Dr. F. B. Dehn (Chairman)



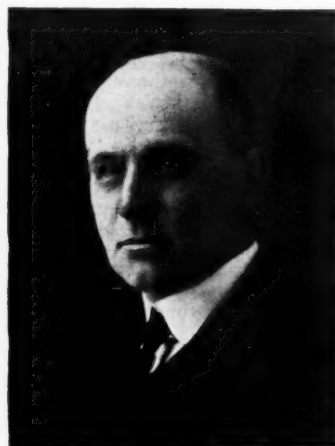
H. E. Coley (Vice-President)



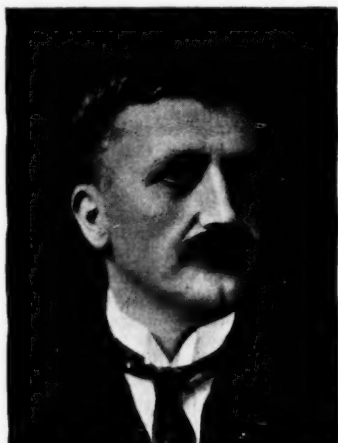
T. Miller-Jones (Hon. Treas.)



Lord Melchett (President)



A. J. Chapman (Hon. Sec.)



Dr. E. H. Tripp (Retiring Hon. Sec.)



J. A. Williams (Secretary)

Annual Meeting of the Chemical Industry Club

A Year of Consolidation and New Effort

THE tenth annual meeting of the Chemical Industry Club was held at the Club on Monday evening. Dr. F. B. Dehn (chairman of the executive committee) presided, and there was a large attendance.

The Past Year Reviewed

The CHAIRMAN, in moving the adoption of the Executive Committee's report (summarised in THE CHEMICAL AGE of October 20), said that looking back on the past year they might congratulate themselves that the Club had had a very successful time and that its finances were in a sound condition. The year might be described as one of consolidation and new effort. The membership had been well maintained and the number, which now stood at 736, represented real live members. It was interesting to note that the new members elected during the year amounted to 75, very nearly double the average of the previous few years. They had had a few resignations, but the membership was as high as, if not a little higher than, it had ever been before. They were getting, not only more members from among the younger generation of chemists, but an increasing number of those who occupied important positions in academic and industrial chemistry, and very much greater use was being made of the Club by members to-day than formerly. The committee had done what was possible, by organising monthly meetings and other events, to develop the social side of the Club.

Undoubtedly, the most important event of the year was the opening of the improvements fund, which had been made possible by two donations of £100 each from their very good friends Mr. Coley and Mr. Miller Jones. The fund had been supported by a number of other friends, with the result that they had raised altogether about £280, with which they were able to begin the refurnishing and general improvement of the Club premises. Increasing use was being made of the Club by kindred institutions and societies. The Committee were very anxious to see the Club utilised in this way to the fullest possible extent; at the same time, it was their duty to see that the rights of the private member were not unduly encroached upon. He concluded by expressing his great appreciation of the support he had received during the year from his fellow officers, the members of the committee, and the general body of members.

The report was seconded by Dr. Tripp, who emphasised the live character of the present membership and the good effects produced by the monthly meetings, and carried unanimously.

Mr. Miller Jones, in proposing the adoption of the accounts and balance sheet (also previously noticed in THE CHEMICAL AGE), remarked that if the accounts had not been so satisfactory he might have had a good deal to say about them, but the financial position was so good that all he had to do was to express the hope that it would continue so.—The motion was seconded by Mr. Craig and carried unanimously.

New Officers

On the motion of the Chairman, seconded by Mr. Collett, Lord Melchett was unanimously elected President of the Club in succession to Professor F. G. Donnan. The Chairman remarked that Lord Melchett was too well-known to need any description and the Club might be congratulated on his acceptance of the office of president.

On the motion of Mr. Craig, seconded by Mr. Miller Jones, Dr. Dehn was unanimously re-elected chairman of the executive committee. Owing to the retirement of Dr. E. H. Tripp from the office of honorary secretary, Mr. A. J. Chapman was unanimously elected to that office on the motion of Mr. Ronca, seconded by Mr. Colgate.

Mr. Miller Jones was unanimously re-elected honorary treasurer on the motion of Mr. Brewis, seconded by Mr. H. F. Knight. To the vacancies on the committee the following were elected: Messrs. H. Talbot, R. L. Collett, F. A. Greene, G. T. Shiptone, Lawson Lomax, J. Vargas Eyre and Harold Moore.

Votes of thanks were accorded, on the motion of the Chairman, to Professor F. G. Donnan, the retiring president, and Dr. E. H. Tripp, the retiring honorary secretary.

The Policy of the Club

Dr. TRIPP, in acknowledging the vote, said that when he accepted the position of honorary secretary five years ago he

did so with misgiving, especially as he was called upon to succeed that stalwart, Mr. Coley, for he was not forgetful of the old adage that "To equal a predecessor one must have twice his worth." He had, however, emerged from what he considered to be a reasonable term of office and was very glad to know that his efforts had been recognised. During his term of office the burden of work had been very considerably lightened by the assistance of their secretary Mr. Williams, and he expressed to him as well as to the three executive chairmen under whom he had served, Mr. Coley, Dr. Ormandy, and Dr. Dehn, his sense of the great assistance he had always received. In Mr. Chapman they had a man who was fully qualified to carry out the duties and he had no doubt at all about his ability to fill the post to the full satisfaction of the committee and the members of the Club.

"When," Dr. Tripp added, "I was appointed in 1923 I made a little speech, contrary to both my habit and my inclination, in which I emphasised the good policy which has always been practised in this Club, namely, the putting in the fore-front of the principle of democracy—government by the members for the members. That policy has been maintained during my term of office, and I trust that it always will be. Within these walls every member has an equal right and an equal footing; we toady to no one; we subserve no clique or sectional interest; subscription rates are the same for all; and though we have no capital worth speaking about neither have we any debts, and we possess sufficient means to meet all obligations that may arise during the next few years. Like all young progressive institutions, we have had, and shall have, our difficulties. We always want more members—of the right kind—and we have difficulty in convincing many members in the chemical field that the Club exists not only to provide comforts and conveniences for the members, but also to assist in promoting solidarity and good fellowship among all members of the profession and industry. Like all other institutions of this kind, there is a constant influx and efflux of members and when a member leaves us it is practically always because he finds he is unable to use the Club to an extent that would make it remunerative. This attitude, although quite legitimate, is in many cases rather a selfish one, because it ignores the all-important principle without which no community can prosper, namely, *esprit de corps*. We are fortunate in having many leaders of chemistry as members of the Club, but there are still many outside the fold who ought to come in, and who perhaps could be induced to do so by a little gentle persuasion from members. I shall always remember with gratitude the chance you gave me to assist in the conduct of the business of the Club and the many pleasurable associations I have formed and enjoyed during my term of office."

A Concrete Success

A vote of thanks was proposed to the Chairman by Mr. R. B. Pilcher. In seconding it, Mr. F. E. Hamer said he was sure that Mr. Pilcher would agree to extend it into a general expression of thanks from the members, not only to Dr. Dehn, but to all the officers and members of committee for their excellent management of the Club and particularly for the improvements introduced this year. From the early days of the Club there had been hopes of attaining a thousand members, of rivalling in numbers and position the Chemists Club of New York, and even of being included in some noble federal scheme with a central building occupying Piccadilly Circus or even Salisbury Plain. While their attainments had not yet equalled their hopes, and while the Chemistry House scheme was still very much in the air, and likely to remain there, the Chemical Industry Club was a present concrete success. It had established for chemists accommodation, a social centre, and an atmosphere that did not exist before, and if it desired recognition it had received the best recognition it could wish for in the acceptance of the presidency by Lord Melchett. In terms that could not be improved on, Dr. Tripp had defined the policy on which the Club had been wisely founded, and they could not do better than continue what had been so well begun. It was because the Club retained its own independence and relied in the main on its own initiative and resources that it was on such friendly terms with all other organisations

and was able impartially to help them in their work without surrendering its own identity.

In a general discussion various suggestions were made for the coming year, including one that Lord Melchett should be asked to give an address to the members. It was announced by Mr. F. A. Greene, who is in charge of the arrangements for the annual joint chemical dinner, that about 300 acceptances had been received and that, to avoid disappointment, early application would have to be made for the remaining places.

Safeguarding Theories

To the Editor of THE CHEMICAL AGE.

SIR,—I have read with considerable amusement the letter by Mr. H. E. Crawford, M.P., in which he sought to show that there was some conflict between the President of the Board of Trade and the Parliamentary Secretary. He said that the President of the Board of Trade, speaking at Norwich, had said that "By safeguarding we have built up new and vital industries. We have built up a chemical industry second to none as the result of our policy." On referring to the *Eastern Daily Press* on September 29, it appears that Sir Philip Cunliffe-Lister said: "We have built up a fine chemical industry." In the House of Commons on March 21, the Parliamentary Secretary to the Board of Trade, in reply to a speech by Mr. Kingsley Griffith, the Liberal M.P. for Middlesbrough, who had quoted certain statistics with regard to employment in the chemical industry, pointed out that those figures related to the chemical industry as a whole, and that "the only branch of the chemical industry which is safeguarded is that of fine chemicals, which employs and never is likely to employ more than, a trifling percentage of the whole number engaged in the industry." It is clear that there was no conflict between the President and the Parliamentary Secretary.

Mr. Crawford was evidently misled by a summarised report of the speech of the President of the Board of Trade, and since he is prominently associated with colleagues who speak with many voices, it was a very easy assumption for him to make that those with whom he differs indulge in the same practice, and therefore he did not take that trouble to investigate, which as a rule so careful a politician as Mr. Crawford is wont to take.

Yours, etc.,

HENRY PAGE CROFT.

Chairman, Empire Industries Association,
Westminster, S.W.1.

October 25.

Posting Foreign Samples of Dutiable Goods

THE Chemical and Dyestuffs Traders' Association draw attention to the facilities provided at the beginning of this year to permit *bona fide* trade samples of goods liable to Key Industry Duty to be posted by Sample Post. Previously, the only method was by Foreign Parcels Post. The new facilities are as follows:—

1. *Bona fide* trade samples of K.I.D. goods, not exceeding 8 oz. in weight, can be despatched by foreign firms to firms in this country.

2. The packets must bear the full name and address of the consignee and must also be addressed c/o The Officer of Customs and Excise, Mount Pleasant Depot, G.P.O., London, E.C.1.

3. The packet must be marked with particulars of contents and value and with the words "trade sample." Samples of K.I.D. goods posted by this method will be delivered in the ordinary way and a charge of sixpence per packet will be made, collected on delivery.

4. Samples of goods liable to the Dangerous Drugs Act and the Dyestuffs Act must not be despatched by this method.

Large numbers of samples of K.I.D. goods continue to be received posted in an illegal manner. In future the Customs authorities will have to consider the desirability of confiscating all such samples posted by Sample or Letter Post that do not conform to the above regulations, which were introduced to assist traders at the request of the Association.

Clearance of Non-dutiable Chemicals

Customs' "General Bond" Scheme

IN reply to representations made by the British Chemical and Dyestuffs Traders' Association, respecting a general bond scheme to avoid the hold-up of chemical goods undergoing sampling and analysis, H.M. Customs have replied that "they are prepared to receive applications from individual importers who wish to give bond for the payment of any duty which may be found to be payable as the result of test, subject to the following conditions:—1. The penalty of the bond should be an amount equivalent to the estimated duty payable on one month's importations, on the basis of full liability to duty, with a maximum penalty of £500. 2. Samples will be drawn in duplicate. 3. The arrangement will only apply to chemicals and similar products which are entered free of duty, and are to the best of the importer's knowledge and belief not liable to any duty of Customs. 4. The Commissioners reserve the right to withdraw or cancel the arrangement at any time in the case of importers from whom bonds have been accepted, where they are not satisfied that the conditions of the arrangement are being fully observed."

General Conditions

In some notes on this reply, the Association state that the general bond will be held by Customs against any duty payable on chemicals and allied products entered by the importer as "non-dutiable." It will not apply to dutiable goods, on which duty will be paid in the ordinary manner. If the firm giving the bond imports, on average, about £3,000 worth of non-dutiable chemicals during a month, Customs will require a bond for £1,000. The general bond system will apply only to chemicals and similar products which are usually sampled, detained, and analysed for Key Industry Duty. Customs reserve the right to cancel a general bond accepted from any importer, but they would only do this in the event of repeated misuse of the bond by the importer, such as, for instance, entering dutiable goods as non-dutiable, and using the bond for payment of duty. The bond is to be used only in respect of goods which the importer believes to be non-dutiable.

Applications should be addressed to The Secretary, H.M. Customs, Custom House, London, E.C.3, quoting Ref. No. 3821/1928, and should state the amount of the bond to be taken out, the names of chemicals and allied products it is to cover, the ports and docks at which it is to operate, and the names of persons, bank or guarantee society who will act as sureties. With regard to sureties, it is understood that Customs would not be likely to accept two directors of a limited company unless they were satisfied that they had sufficient assets outside the limited company to cover the amount. In most instances it is believed they will accept the bond of the applicants as being satisfactory cover if it is supported by a good banker's reference. In the event of an importer clearing goods under this scheme which, upon being tested, are found to be dutiable, it will not necessarily mean forfeiture of the amount of the bond, but only payment of the amount of duty plus the usual fine that is always inflicted for "wrongful entry" of goods.

Spanish Monopoly of Nitrogen Products

ACCORDING to Spanish Press reports, the Spanish Government is planning a fresh monopoly for the manufacture of nitrogenous substances. Claiming, as in the case of oil, that it is necessary for the defence of the realm to control supplies, it is proposed to raise the duties on sulphate of ammonia, superphosphates, nitrates, etc., and to prohibit the establishment for a period of two years of any factories for the production of nitrogen compounds. For the last few years (says *The Daily Telegraph*) Spain has been the scene of a three-cornered fight between Germany, England and Spain for the market in sulphate of ammonia, the manufacture of which is now probably to pass entirely into the hands of a company which has been producing some 100 tons a day in the province of Arragon. Hitherto the British manufacturers of ammonium sulphate, the German Stickstoff Syndicate, and the Spanish Sociedad Anonima Gros have been the chief competitors, although the French have captured a fair share of the market in superphosphates, of which the consumption is over 1,500,000 tons per annum.

An American Interview with Lord Melchett

A Frank Talk on I.C.I. Projects

Just as Lord Melchett returns to England from his important American and Canadian tour, our New York contemporary, "Chemical Markets," arrives with a breezy account of a personal interview with him on board the s.s. "Homerich" as he was approaching New York. In the interview reproduced below he discusses I.C.I. projects with frankness, and appears to have left a very favourable impression.

"THERE has never been any question of our amalgamation with the I.G." "Mergers are rational, modern means for eliminating over-production." "Despite tremendous recent developments, the world is still short of nitrogen." "The Finance Company of Great Britain and America does not apply to the chemical industry." "Nothing is gained by industrial warfare, just as nothing is gained by international warfare. The only result is suffering." In this fashion, Lord Melchett, chairman of the board of Imperial Chemical Industries, Ltd., leading British industrialist, and probably the most widely-known figure of the chemical industry, whose business, financial, economic, social and political interests and influence are world-wide, expressed his views to the writer.

We were seated in the living-room of his suite aboard the s.s. *Homerich* as the liner was slowly making its way up New York Bay from quarantine. A comparative calm had settled over the room following the departure of the swarm of reporters, who, having interviewed the "lion" of the passenger list, were off to get their stories from other celebrities.

"There has never even been any question of an amalgamation of Imperial Chemical Industries with the I.G.," answered Lord Melchett in response to the writer's query as to whether he thought there was still some possibility of a working agreement or a reallocation of markets being arrived at between his interests and those of the I.G. He paused a moment to light another cigarette on the butt of the one he still held between his fingers. Although he inhaled his cigarette only at rare intervals, he kept one burning between his fingers almost constantly during the hour or hour and a half of the interview. "Our relations with the I.G. are similar to those we have with the Allied Chemical in this country," he continued. "We all have many points of contact in common, but there is no question of working together such as you find between the I.G. and the Kuhlmann interests."

Going on to speak of mergers in general, he said that in the formation of Imperial Chemical Industries he was merely following the example set by American industries. "You were the first to start big mergers," he continued, speaking of the United States. "We form a little merger in England or Europe, which does not compare in size with those you have here, and, judging by press reports, you get all excited. Imperial Chemical Industries is only about the same size as your own Allied Chemical, and you seem to take that as a matter of course. When you reach that industrial stage where you have too much production, some steps must be taken to put things on a rational basis. The old method of elimination by competition is like a surgeon performing an operation without using anaesthetics. The merger method, on the other hand, while accomplishing practically the same result, makes the operation a more easy and painless one."

"The world is still short of nitrogen in spite of vastly increased production and predictions of over-production," was Lord Melchett's opinion regarding the world nitrogen situation. "That is a very interesting phenomenon. The world has never had cheap nitrogen until now, and, as a result, its uses have been greatly extended. Progressive exhaustion

of the soil, development of the intelligence of the agricultural communities, and extensive propaganda carried on by the Germans and ourselves, have all contributed to increase consumption greatly. I am very much interested in the nitrogen developments of the United States, for they are bound to become of tremendous economic importance. I was much interested to learn from your experts at the nitrogen conference that in the relatively near future the American farmer would have to use nitrogen to rehabilitate the soil of your country."

Function of Finance Company

In speaking of the Finance Co. of Great Britain and America, Ltd., Lord Melchett said that the idea had originated at a luncheon he and Albert H. Wiggin, now chairman of the American committee of the corporation, had had together in London. It had seemed to them that an important group from each country might work together and be mutually helpful in many enterprises to the advantage of both. In answer to a direct question regarding the scope of this organisation he replied that "it does not apply to the chemical industry. It is for things that the I.C.I., for instance, does not want to do, but still has interesting possibilities. There has always been a great divorce between industrial leaders and financiers. The financier has always seemed short of new ideas which flood the industrialist. This organisation unites them and gives a field for a wider range of operations."

In speaking of synthetic rubber, Lord Melchett pointed out that, of course Imperial Chemical Industries would be interested if somebody were to produce a product cheaper than the natural product, but "even the I.G. doesn't claim to have a commercial process." He also admitted that the Germans were perhaps further ahead in their processes for cracking oil and that both the I.C.I. and the I.G. had been working a long time on a process for extracting oil from coal.

It seemed that only one other of his many divergent interests seemed to interest Lord Melchett as much as Imperial Chemical Industries. That is his socio-economic programme to which the name of "Mondism" has been given. In speaking of it he said that "England had learned a great lesson out of the general strike and the coal strike. Nothing is to be gained by industrial warfare any more than anything is to be gained by international warfare. The only result of either is suffering. What we are attempting to create in England is a national council of industry consisting of trade union leaders and leading manufacturers, with a programme of weekly meetings to settle industrial disputes. The projected plan has already been voted upon and accepted by the labour unions and I expect that the manufacturers will have accepted it and everything be settled by the time I return. A curious development of our preliminary discussions was the fact that both factions were strongly opposed to any sort of state interference."

By this time, the *Homerich* was within a few moments of docking and the photographers who had been waiting to "shoot" Lord Melchett and his party, could no longer be denied. Accordingly all filed up on deck and Lord Melchett posed long and uncomplainingly, taking off and putting on



ON BOARD THE S.S. HOMERICH.

his hat at the requests of the various camera men, while a stiff, cold breeze swept across from the Palisades. He remained genial and good-humoured throughout this ordeal, accepting it all in good spirit, as he had the raking fire of questions from the reporters earlier in the afternoon. During the entire time he seemed natural, sincere, cordial and at rare intervals dryly humorous. His English accent is not at all pronounced, and his only noticeable British trait is his habit of occasionally throwing in a semi-interrogatory "what?" at the end of a statement.

Etablissements Kuhlmann

French Chemical Combine to Raise Fresh Capital

It is understood that an important offer of shares of the Etablissements Kuhlmann, the great French chemical concern, will be made shortly in the international market. The new capital is to be raised to finance further expansion of this concern, whose growth within recent years has been remarkable.

From an annual output of 25,000 metric tons in 1915, its production of artificial fertilisers and chemicals had risen by 1927 to 1,100,000 metric tons. Notable gains were again recorded during the first half of 1928, when tonnage sales of chemicals rose by 31½ per cent. and total turnover by 38 per cent. Earlier this year, of an authorised issue of 200,000 shares made by the Kuhlmann interests, 50,000 shares were taken up by a group headed by Dillon Read and Co., of New York. It is expected that this group will participate in the new offer shortly to be made.

An important new departure made by the combine has secured its firm establishment in the dyestuffs field. In co-operation with the leading coal mines of France, Etablissements Kuhlmann utilise coke by-products for the manufacture of synthetic ammonia and synthetic nitrate. Last year a close marketing agreement was concluded between the company and the I.G. Farbenindustrie of Germany with regard to the marketing of dyestuffs. In certain countries the two concerns are housed in the same premises. Although in European countries separate selling organisations are maintained, overlapping is avoided.

Among the company's recent achievements is the production of a new methyl alcohol motor-fuel from coke-oven gas. A large amount of this fuel is now being manufactured at one of the company's plants at Loos. Plans are now in hand for a large-scale expansion of output at this factory as well as at another at Courrières.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

118. ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$. (Pearl White)).—A firm in the North of England is anxious to obtain current prices and particulars of market for pure calcium sulphate dihydrate prepared by precipitation. They also desire to know if it is sold in paste form or dry powder, and wish to communicate with any firms interested.

119. (Filtration).—A subscriber writes: "We are confronted with the problem of removing from solution by filtration the silver iodide precipitate in copper zinc chloride sulphate solution. The concentration of the silver iodide is of the order of 0.1 to 0.15 grammes per litre; the particle size of the precipitate is small, it is readily removed by filtration through pulp, but is not efficiently removed by filtration through ordinary filter papers. The liquor is to be handled in 5,000 gallon lots which must be filtered in 2/3 hours. The precipitate must be recovered once per week at least. Six lots will be handled per day."

Salt Companies Discuss Amalgamation

REPRESENTATIVES OF THE INDEPENDENT SALT companies in Cheshire met last week-end, when the proposed amalgamation was discussed. Subject to the adjustment of details which are now being examined, the proposal was approved. Considerable economies are expected to be effected, so that profits can be secured without any undue advance in price to the public.

Glycerin versus Substitutes

An Interesting Paper at Bristol

THAT glycerin, in face of the competition of substitutes, would maintain its position as a chemical of outstanding importance was the assurance given by Messrs. W. F. Darke and E. Lewis, in a paper on "Glycerin and Its Substitutes in Industry," which was read on Thursday at a joint meeting of the Bristol Section of the Society of Chemical Industry and the Chemical Engineering Group.

In prefatory remarks the authors stated that technical data relating to the industrial use of glycerin were so meagre and widely scattered in the literature that it seemed desirable to correlate the available information. The history of glycerin since its isolation by Scheele in 1779 to the present day formed an interesting example of the development of modern methods of chemical technology. The candle stearine industry first produced a commercial source of supply of glycerin in about 1820, but difficulties of purification and concentration engaged technologists until 1850. Owing to the secretive methods of half a century ago and to the paucity of industrial chemical research little could be gleaned of its early use except its application to the explosive industry by Nobel in 1865.

Position in the Last Few Years

Reviewing the whole field of the use of glycerin and its substitutes in industry, several points of interest arose. From its beginning as an industrial chemical until 1914, glycerin, owing to its unique properties, was steadily absorbed by an unusually large number of diverse industries. During the war the explosive industry diverted the supply from other channels regardless of cost, leading to the introduction of substitutes. The post-war period opened with considerable stocks of glycerin, and some time elapsed before the market assumed its normal level. Such a position could not fail to be detrimental to the normal development of a chemical and led to considerable fluctuations in price. At the present time the glycerin market appeared to be approaching a stable condition.

War Substitutes Disappearing

The majority of the war substitutes had disappeared, having achieved no definite place in industry. One outstanding exception was that of ethylene glycol. This was developed by the Central European countries under war conditions consequent on the shortage of glycerin supplies, and was still being manufactured on a modified scale, presumably from ethyl alcohol.

Ethylene glycol had also been produced by the Carbide and Carbon Chemicals Corporation of the United States, originally as a substitute for ethyl alcohol for anti-freeze purposes, coincident with the entry of glycerin in the same field. The commercial expansion of the American ethylene glycol was due to intensive chemical research, carried out to a large extent by the aid of fellowships at the Mellon Institute of Industrial Research, in such a manner that the properties of the parent substance and its derivatives had been brought continually into prominence in the American technical press. In many of these publications it was represented as a definite substitute for glycerin, and undoubtedly would find applications in some cases, but its use had not been extended over a sufficient period to permit the publication of impartial comparisons.

Lacquer Solvents

In one particular field—that of lacquer solvents—it seemed probable that glycerin might prove a more satisfactory raw material for economic reasons, for it appeared that the cost of production of ethylene glycol was such as to prohibit its universal substitution for glycerin, as the prevailing prices in America showed—viz., ethylene glycol at \$0.26 per lb. in carloads, ex works, and C.P. glycerin at \$0.15 per lb. in drums.

A misapprehension appeared to have existed for some time that the use of glycerin in industry was threatened by the introduction of a new chemical. The authors trusted that they had shown that such a suggestion was without foundation, and submitted that the representative examples of its present utilisation by industry and the prospects of its further development left no doubt that, on account of its unique physical and chemical properties, glycerin would maintain its position as a chemical of outstanding importance.

From Week to Week

LORD MELCHETT reached England on Wednesday, on his return from America.

LORD WEIR, chairman of G. and J. Weir, Ltd., has been elected a director of Lloyds Bank, Ltd.

A HUNDRED MILLION FRANCS, including twenty-five millions from the Solvay family, have been subscribed in Belgium for scientific purposes.

IT IS REPORTED that the German and French potash producers have purchased the "Fodina" potash concessions in Spain, covering some 60,000 acres of ground in the northern potash area.

LOW TEMPERATURE CARBONISATION, LTD., has changed its address to Coalite House, 28, Grosvenor Place, London, S.W.1. Telephone: Sloane 9274-6; telegrams: Lowtemcar, 'Phone, London and Britlite, 'Phone, London.

IN CONNECTION with the Billingham works of Imperial Chemical Industries, Ltd., a new infant welfare centre was opened on Thursday, October 25, by Lady Erleigh, daughter of Lord Melchett. Mrs. R. E. Slade is to preside over the Welfare Association.

PROFESSOR A. R. LING will deliver the eleventh Streatfeild Memorial Lecture of the Institute of Chemistry in the lecture theatre of King's College, London, on November 16 at 8 p.m., his subject being "Contributions to the History of Starch and Transformation Products."

THE EXTENSIVE Parys Mountains Copper Mines in Anglesey are to be re-opened shortly. The special attention of mining experts was drawn to the abandoned mines some four years ago, and after prolonged investigation the potential value of the copper area is said to have been demonstrated.

A GENERAL LICENCE to buy morphia, issued by the Home Office to Barclay and Sons, Ltd., manufacturing chemists, 95, Farringdon Street, London, was lost on Tuesday. Scotland Yard is endeavouring to trace the document, which will enable its possessor to obtain considerable quantities of morphia.

ARTIFICIAL SILK NEWS.—An issue of shares in the British Netherlands Artificial Silk Co., Ltd., will be made on Monday. Arrangements have been made for the purchase of a factory at Wigan, Cumberland, and a site at Derby, and plant will be installed having a capacity of thirty tons per week of artificial silk.

SIR PHILIP CUNLIFFE-LISTER has consented to receive, shortly after the opening of Parliament, a deputation from the National Gas Council. The object of the interview will be to enable the gas industry to place before the Government the case for the introduction of a bill to amend existing legislation in such a way as to remove certain restrictions which are held to hamper development.

THE BRITISH FEEDING MEALS MANUFACTURING CO., LTD., states in a circular that the new fish meal works at Stratford will be in full production at the end of November. By a working agreement with Waste Food Products, Ltd., the company secures for ten years additional fish meal not hitherto handled by it. An arrangement has been made whereby the company acts as the agents of Sea-going Factories, Ltd.

THE British Association of Road Emulsion Manufacturers has been formed, with offices at 66, Victoria Street, London, and has for its object the standardisation of road emulsions, of which a large number have appeared on the market of recent years. The Ministry of Transport has expressed agreement with the objects of the Association and has promised co-operation in the formulation of standard specifications which may secure general acceptance.

MOTOR FUEL PROPRIETARY, LTD., have secured a contract from the Meiros Colliery of South Wales for the erection of a plant for treating 500 tons of coal per day. Mr. H. H. Merrett, managing director of Messrs. Gueret, Llewellyn, and Merrett, of Cardiff, has joined the board, and Lieut.-Colonel F. I. L. Ditmas has joined the company in connection with the technical management. The scheme for the erection of a large plant and refinery at Nottingham is expected to be brought to a conclusion at an early date.

MR. JOSEPH WARD, chairman of Thos. W. Ward, Ltd., Albion Works, Sheffield, was presented by the staff, on the occasion of the jubilee of the firm, with a piece of Sheffield plate made over 100 years ago by Creswick. The firm has issued a lavishly illustrated and beautifully produced brochure to commemorate the jubilee. This contains a detailed history of the company, and the illustrations include a photo of the humble original premises of the firm and a composite map of the extensive coke-ovens, quarries, furnaces, docks and ship-yards now owned all over the country.

THE WOODALL-DUCKHAM Co. have commenced the work of erecting a coal distillation plant at Trethomas, Glamorgan, for British Benzol and Coal Distillation, Ltd., a subsidiary company of the Bedwas Coal Navigation Co., Glamorgan. The plant will occupy a site of 5½ acres of land. There will be thirty-five ovens, each with a daily capacity of fifteen to sixty-four tons, the total capacity being 750 tons per day. Among the products to be produced by the company will be gas, coke, tar, ammonium sulphate, carbolic acid, anthracene oil, toluole, creosote, and solvent naphtha.

PARTICULARS APPEAR in our advertising columns for a vacancy for a chemist in Spain.

LEVER BROTHERS, LTD., intend to establish a large soap works in Java, probably at Sourabaya.

SENSIBLE HEAT DISTILLATION, LTD., announces that the New Zealand "L. and N." Co., will be registered with a capital of £100,000.

UNIVERSITY NEWS.—*St. Andrews*: Lord Melchett and Sir Wilfred Grenfell have been nominated as candidates for the Lord Rectorship of the University in succession to Dr. Fridtjof Nansen.

MR. WILLIAM BROOKS, departmental manager of Williams (Hounslow), Ltd., has retired after 50 years' service with the firm. He had charge of the manufacture of the nigrosines and indulines.

THE RESEARCH FUND Committee of the Chemical Society will hold a meeting in September. Applications for grants should be made on forms obtainable from the Assistant Secretary, Chemical Society, Burlington House, Piccadilly, London.

RECENT WILLS INCLUDE:—Dr. Martin Liebert, of Beckenham, a director of Spencer, Chapman and Messel, Ltd., acid manufacturers, £12,579 (net personalty £8,754).—Mr. H. Horton, of Bourne-mouth, chemical manufacturer, £17,015 (net personalty £15,768).

AN UNDERSTANDING, it is said, has virtually been reached between the Belgian coke-oven companies for the constitution of a coke and coking coal cartel. The gas works producing foundry coke will, it is stated, join the cartel, which will probably come into force on January 1 next.

PERCENTAGE UNEMPLOYMENT in October among insured persons in chemicals manufacture was 6 (males 7.1, females 2.9); in explosives manufacture, 5 (males 4.8, females 5.4); in paint and varnish, etc., manufacture, 4.6 (males 4.8 females 3.8); and in oil and grease, etc., manufacture, 6.1 (males 7, females 3.6).

MR. P. WHITE has been appointed research director of the New Zealand Tanners' Federation. He was engaged on bio-chemical work at the beginning of the war, and lately has been chief assistant chemist to Barrow, Hepburn and Gale, Ltd., tanners, of Bermondsey. He was also consulting chemist to *The Leather World*.

THE BRITISH ASSOCIATION OF CHEMISTS has arranged this year to hold its annual general meeting in Birmingham on November 17, and the annual dinner in connection with it will take place at the Midland Hotel in the evening. The London Section will hold a smoking concert at the Broad Street Station Buffet on December 7.

SUBSIDENCE OWING TO BRINE PUMPING has for the last thirty or forty years been confined to the Northwich and Winsford districts, but brine areas in other parts of Cheshire are now to be drawn upon, and property owners are trying to get the operation of the Northwich Salt Compensation Act extended to these areas. The Minister of Health, it is understood, is prepared to consider the matter.

SCOTTISH COAL PRODUCTS, LTD., are arranging for the acquisition of additional premises and subsidiary works, which will enable oil to be produced considerably earlier than was at first anticipated. The company was formed recently to exploit certain processes developed in Scotland for the production of oil from coal. Shell-Mex, Ltd., have contracted to take 4,000,000 gallons of spirit annually for at least five years.

THE HARGREAVES-BIRD electrolytic plant of Electro-Bleach and By-Products, Ltd., which was recently announced to be closed down, finished operations on October 5. The Hargreaves-Bird cell was the invention of the late Mr. James Hargreaves, a pioneer of the heavy chemical industry in the last century. It was one of the first alkali-chlorine cells to work commercially. The first installation was erected by the Electrolytic Alkali Co. in 1900, and with the exception of a short interruption in 1913-14, the process was worked continuously up to the present time.

AT THE CONCLUSION of the American tour at New York, ten representatives of Imperial Chemical Industries (as we announced in our notes at the time) returned to Toronto and Montreal as guests of Canadian Industries, Ltd., to visit some of their factories. At Toronto they visited the works of the Flint Paint and Varnish Co. and Canadian Fabrikoid, whose products are similar to "Belco" and "Rexine," and they were impressed by the size and rapid development of these plants. While at Montreal they visited the Beloil factory, one of the largest C.I.L. explosive plants, to which raw materials are supplied by Ardeer and Billingham, and Brownsburg, where the manufacture of fuses, ammunition, detonators, and pyralin articles was inspected. Mr. Purvis, president and managing director of C.I.L., expressed his regret to the visitors that he had not been able to entertain all the members of the I.C.I. during the tour.

Obituary

PROFESSOR ARNOLDO BIANCHI, a member of the editorial staff of the *Giornali di Chimica Industriale ed Applicata*, on August 10, aged 63, at Ponte di Legno, Italy.

PROFESSOR R. E. BERRY, professor of agricultural chemistry at the West of Scotland Agricultural College, Glasgow, on October 12, aged 52 years.

References to Current Literature

British

ANALYSIS.—Investigations into the analytical chemistry of tantalum, niobium, and their mineral associates. XIII. A new method for the separation of zirconium and hafnium from tantalum and niobium. W. R. Schoeller and E. F. Waterhouse. *Analyst*, October, pp. 515-520.

The fatty acids of Egyptian butter fats. H. Atkinson. *Analyst*, October, pp. 520-530.

CELLULOSE.—A new reagent for the determination of oxycellulose. W. F. A. Ermen. *J. Soc. Dyers and Colourists*, October, pp. 303-305. The sample is immersed in a hot solution containing ferric sulphate, ammonium sulphate and potassium ferrocyanide; and then rinsed in dilute sulphuric acid and water. Oxycellulose is stained deep blue.

The chemical analysis of cotton: The determination of cellulose by oxidation with chromic acid. C. Birtwell and B. P. Ridge. *J. Textile Inst.*, October, pp. 341-348 T.

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The chemistry of Western Australia sandalwood oil. A. R. Penfold. *Perfumery and Essent. Oil Record*, October, pp. 417-420.

Balsam of Peru. C. T. Bennett. *Perfumery and Essent. Oil Record*, October, pp. 423-424.

TEXTILES.—The valuation of protective agents. H. Blackshaw. *J. Soc. Dyers and Colourists*, October, pp. 297-300. Deals with the investigation of substances which protect animal fibres against the action of alkali.

United States

COMBUSTION.—A symposium held recently by the American Chemical Society.—Introduction. G. G. Brown. Diffusion Flames. S. P. Burke and T. E. W. Schumann.—Measurement of the temperature of stationary flames. A. G. Loomis and G. St. J. Perrott.—Radiant energy from flames. W. E. Garner.—Bunsen flames of unusual structure. F. A. Smith and S. F. Pickering.—The flicker of luminous flames. D. S. Chamberlin and D. R. Clarke.—The gaseous explosive reaction at constant pressure. F. W. Stevens.—The "normal" propagation of flame in gaseous mixtures. W. Payman.—Gaseous explosions: VI. Flame and pressure propagation. J. V. Hunn and G. G. Brown.—Some flame characteristics of motor fuels. G. B. Maxwell and R. V. Wheeler.—Importance of mixture ratio in rating fuels for knock. J. M. Campbell, W. G. Lovell and T. A. Boyd.—Action of accelerators and inhibitors upon the oxidation of liquid hydrocarbons. T. E. Layng and M. A. Youker.—Partial oxidation of methane and ethane in the presence of catalysts. T. E. Layng and R. Sonkup.—Relative rates of reaction of olefines in combustion with oxygen and in oxidation with aqueous potassium permanganate. H. S. Davis. *Ind. Eng. Chem.*, October 1, pp. 998-1057.

GENERAL.—Advances in reclaiming tin from silk weighting washings. G. Butfield. *Chem. Met. Eng.*, October, p. 607.

Safe removal of caustic soda from drums. L. H. Kaufman. *Chem. Met. Eng.*, October, p. 633.

RUBBER.—Reinforcement of rubber by fillers. J. T. Blake. *Ind. Eng. Chem.*, October 1, pp. 1084-1088. A new theory of pigment reinforcement is presented, in which a reinforcing filler is defined as one which forms a bond with the rubber matrix that is stronger than the matrix itself. A molecular tensile curve substantiates the conception. The mechanism of filler dispersion is considered, and the work of Langmuir and Harkins is applied to rubber. Calculations of the quantity of dispersing agents and of the heats of wetting conform to experimental values. The means of extending the reinforcement of rubber by carbon black is discussed.

Carbon blacks and their use in rubber.—III. Ageing effects. L. B. Cox and C. R. Park. *Ind. Eng. Chem.*, October 1, pp. 1088-1091. A discussion of the effects of ageing on various properties of a mix of rubber and sulphur with the carbon blacks and accelerators.

SAFETY.—Safety congress studies hazards in chemical manufacture. *Chem. Met. Eng.*, October, pp. 619-621.

Chemical health hazards in the rubber industry. L. J. D. Healey. *Chem. Met. Eng.*, October, pp. 621-622.

VITAMINS.—The concentration of vitamin B.—IV. The concentration and separation of the two components of vitamin B. P. A. Levene. *J. Biol. Chem.*, October, pp. 465-470. By means of adsorption on silica gel and subsequent manipulation the two components of vitamin B (heat-stable and heat-unstable) may be separated.

Further evidence of the complex nature of vitamin B.—I. Evidence that a third factor exists. C. H. Hunt. *J. Biol. Chem.*, October, pp. 723-731.

German

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APPARATUS.—A new laboratory retort stand. C. Hütter. *Chemische Fabrik*, October 17, pp. 609-610.

ARTIFICIAL SILK.—Dr. Leon Lilienfeld's researches and patents. W. A. Dyes. *Kunstseide*, October, pp. 401-407.

The development of the cellulose acetate industry from the point of view of history and patents. R. A. Kölliker. *Kunstseide*, October, pp. 409-410.

COLLOIDS.—Colloidal solutions of carbon. H. Lachs and K. Gestel. *Zeitschrift physikal. Chem.*, Vol. 137, Parts 1-4, pp. 193-200.

GENERAL.—Experiments with colours fast to smoke. A. Junk. *Korrosion und Metallschutz*, October, pp. 230-234.

The oxidation of cellulose under the action of light. W. Scharwin and A. Pukschwer. *Zeitschrift angewandte Chem.*, October 20, pp. 1159-1161.

TEXTILES.—Advances in the chemical technology of textile fibres in the period 1919-1927. R. Loewenthal. *Chemiker-Zeitung*, October 27 (Fortschrittsberichte supplement), pp. 105-118.

Miscellaneous

ANALYSIS.—The Duclaux method for the estimation of volatile fatty acids and its application to the estimation of butter fat in margarine. A. Knetemann. *Recueil Travaux Chim. Pays-Bas*, October 15, pp. 950-970 (in English).

COLLOIDS.—The trend of thought in modern colloid chemistry. H. R. Kruyt. *Recueil Travaux Chim. Pays-Bas*, October 15, pp. 883-895 (in English).

Contribution to the study of sols.—III. The adsorptive power of sols towards ammonia. J. Clarens and Péron. *Bulletin Société Chim. France*, September, pp. 962-969 (in French).

ORGANIC.—The action of nitric acid on some derivatives of ethylene. II. Nitration of some styrene derivatives. J. van der Lee. *Recueil Travaux Chim. Pays-Bas*, October 15, pp. 920-933 (in English).

On the basic nitrogen compounds from Fushun shale tar. II. T. Eguchi. *Bulletin Soc. Chem. Japan*, September, pp. 227-234. The following substances were found: 4-methylpyridine, 3-methylpyridine, 2:3-dimethylpyridine, 2:5-dimethylpyridine, 3:4-dimethylpyridine, 2:4-methylethylpyridine and 2:3:6-trimethylpyridine (in English).

SYNTHETIC RESINS.—The chemical composition and technical properties of the Albertols. J. H. Frydender. *Revue Produits Chimiques*, September 30, pp. 661-665 (in French). An account of the resins, known as "Albertols," manufactured by the Chemische Fabriken Dr. Kurt Albert.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

- 297,376. VAT DYESTUFFS, MANUFACTURE OF. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, June 20, 1927.

These vat dyestuffs are obtained by the combination of dihalogenated alkylisatin substituted in the benzene nucleus or a reactive α -derivative with a compound containing a keto methylene group in cyclic combination, or a homologue or substituent. Alternatively, the vat dyestuffs are obtained by reducing a reactive α -derivative of dihalogenated alkylisatin substituted in the benzene nucleus to a symmetrical indigo. Compounds containing a keto methylene group include naphthols, anthrols, oxythionaphthenes, oxynaphthothio-phenes, indoxyls, naphthindoxyls, etc. Examples are given of the combination of the α -chloride solution of 5-bromo-6-chloro-7-methylisatin with *p*-chlor- α -naphthol, 4-bromo-5-chloro-7-methylisatin with α -anthrol, 5:7-dichloro-6-methylisatin with 6-chloro-4-methyl-3-oxythionaphthene, 5:7-dichloro-6-methylisatin with 3-oxythionaphthene-2-carboxylic acid, 4:6-dimethyl-5:7-dichlorisatin with 4-chloro-1-naphthol. Also the reduction of the α -chloride solution of 5:7-dichloro-6-methylisatin with hydrogen sulphide to 5:7:5':7'-tetra-chloro-6:6'-dimethylindigo.

- 279,308. SPLITTING HYDROCARBONS, PROCESS FOR. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, May 16, 1927.

Hydrocarbons containing more than four atoms of carbon in the molecule can be split by bringing the heated vapour into contact with catalysts consisting of one or more difficultly reducible metal oxides. The products consist of olefines and diolefines containing a smaller number of carbon atoms in the molecule than the initial materials. Suitable catalysts consist of oxides and hydroxides of the alkali metals, and oxygen-containing salts such as aluminates, chromates, tungstates, vanadates, uranates, phosphates, oxides of calcium, strontium, barium, magnesium, glucinum, aluminates of alkaline earth metals, oxides of scandium, titanium, yttrium, zirconium, lanthanum, tungsten, molybdenum, thorium, uranium. The catalysts may be used with or without a carrier such as magnesium or aluminium silicate, and metals may also be present which have only a weak dehydrogenating action, such as copper, platinum, molybdenum, and tungsten. It is possible to obtain good yields of butadienes from completely hydrogenated benzene hydrocarbons. The reaction is effected at 600°–750° C. and the process may be cyclic. Examples are given of the treatment of tetra- and hex-hydrobenzene to obtain butadienes and ethylene, and Russian benzene to obtain low boiling liquid hydrocarbons and gaseous olefines.

- 297,484. AMINES OF THE HYDROAROMATIC ALIPHATIC SERIES, PRODUCTION OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, May 23, 1927.

Amines containing hydro-aliphatic and aliphatic radicles and a hydroxyl group in at least one aliphatic radicle are obtained by condensing hydroaromatic ketones or oxides with aliphatic amino-hydroxy compounds, or hydroaromatic amines with alkyl oxides or with aliphatic hydroxy compounds containing a halogen, aldehyde, or ketone group. When compounds containing aldehyde or ketone groups are employed, reduction is necessary to obtain the corresponding hydroxy compounds. Cyclo-hexyl-ethanol-amine is obtained by the action of glycol-chlorhydrin or ethylene oxide on the cyclo-hexyl-amine, or by the action of cyclo hexanone on ethanol-amine and reduction with hydrogen and nickel. Similar substances are obtained by the action of hydroxy aldehydes and hydroxy ketones such as aldol or sugars on hydroaromatic amines, followed by hydrogenation. The products are suitable for preservatives, etc.

- 297,546. ALKALI METAL OR AMMONIUM PHOSPHATES, MANUFACTURE AND PRODUCTION OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, July 27, 1927.

In the conversion of dicalcium phosphate or other sparingly soluble phosphates into alkali metal or ammonium phosphates, a practically quantitative yield of concentrated phosphate solution is obtained by treating the original material with alkali metal fluoride or ammonium fluoride. The resulting calcium fluoride is easily separated by filtration. The solution is concentrated and cooled, and phosphoric acid or ammonia may be added to obtain mono-, di- or tri-ammonium phosphate. The solid salt is washed with ammonium phosphate solution to remove traces of ammonium fluoride employed in the reaction.

- 297,692. N-DIHYDRO-1:2:2¹:1¹-ANTHRAQUINONE AZINE, PROCESS OF MAKING. F. B. Dehn, London. From The Newport Co., Carrollville, Wis., U.S.A. Application date, April 25, 1927.

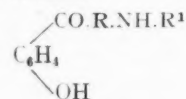
The process is more particularly for making N-dihydro-1:2:2¹:1¹-anthraquinone-azine (indanthrone) in a relatively high degree of purity so that it may be used directly for dyeing from the hydro-sulphite vat. The halogen derivatives of N-dihydro-1:2:2¹:1¹-anthraquinone-azine are heated with alcoholic potash to dehalogenate them, with or without a solvent or diluent, and with or without a catalyst such as copper or other reducing metal. The starting material is preferably di-brom-N-dihydro-1:2:2¹:1¹-anthraquinone-azine, which is obtained by the condensation of 1:3-dibrom-2-amino-anthraquinone. Other dehalogenating agents may be employed, such as sodium amalgam, copper, glucose and caustic alkali, etc.

- 297,722. DYESTUFFS CONTAINING CHROMIUM, MANUFACTURE OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, June 25, 1927.

The dyestuff obtained from diazotized 4-chloro-2-amino-phenol-6-sulphonic acid and 2:4-dihydroxy-quinoline is treated with a soluble chromium salt to obtain a complex chromium compound giving a Bordeaux red shade fast to washing, milling and light. The dyeing can be discharged to a pure white with hydro-sulphite.

- 297,756. MONOXY-PHENYL-ALKYL KETONE DERIVATIVES. H. Legerlotz, 18, Bochumerstrasse, Berlin, N.W.21. Application date, April 22, 1927.

The process is for preparing monoxy-phenyl-alkyl-ketones which in the side chain contain alkyl-amino groups, and are represented by the formula



in which R is a divalent aliphatic hydrocarbon residue, and R¹ is a monovalent aliphatic hydrocarbon residue. These compounds are obtained by treating monoxy-phenyl-alkyl-ketones, which are halogenated in the side chain with primary aliphatic amines. In a similar manner derivatives of monoxy-phenyl-alkyl-ketones which are alkylated or acylated on the hydrogen of the hydroxyl group and halogenated in the side chain are treated with primary aliphatic amines. This is accompanied or followed by splitting out of the oxy group the alkyl or acyl with primary aliphatic amines. Examples are given of the preparation of para-oxy-monomethyl-amino-acetophenone and parabenzoxy-oxy- α -brom-propio-phenone by the two methods respectively.

- 297,855. INTERMEDIATE COMPOUNDS AND AZO DYES THEREFROM, MANUFACTURE OF. British Dyestuffs Corporation, Ltd., Hexagon House, Blackley, Manchester, and M. Mendoza, Crumpsall Vale, Chemical Works, Blackley, Manchester. Application date, May 27, 1927.

Specifications Nos. 245,865 and 262,243 (see THE CHEMICAL AGE, Vol. XIV, p. 184A, and Vol. XVI, p. 48) describe the preparation of amino-diaryl-sulphones by condensing sulphinic derivatives of *o*-hydroxy-carboxylic acids with halogenated aromatic nitro compounds containing reactive halogen, and subsequently reducing the nitro group. The sulphinic or sulphone group is in the para position to the hydroxyl group of the *o*-hydroxy acid. In this invention the sulphinic or sulphone group is ortho to the hydroxyl group, the starting materials being *o*-hydroxyl-carboxylic acids containing a substituent para to the hydroxyl group. These compounds are employed in the preparation of azo dyes which retain practically the same shade when chromed. The starting material may be any ortho-hydroxy-carboxylic acid substituted in the position para to hydroxyl group but unsubstituted in the position ortho to the hydroxyl group, such as *p*-cresotinic acid, 5-chloro-salicylic acid, or 2:3-hydroxy-naphthoic acid. The hydroxy acid is first converted into a chloro-sulphonyl-derivative by treating with chloro-sulphonic acid, and the product reduced to the 3-sulphinic acid. The latter is converted into the sulphone by condensing with a halogenated nitro compound containing reactive halogen such as 1-chloro-2-nitro-benzene, 1-chloro-2-nitrobenzene-4-sulphonic acid, 1-chloro-2:4-di-nitro-naphthalene, 4-chloro-3-nitrobenzoic acid, 4-chloro-3-nitro-benzonitrile, and other similar compounds. The nitro or dinitrosulphones are reduced to amino or diamino-sulphones, which may be used for the production of azo dyes. The monoamines or the monoacylated diamines may be diazotised and coupled with the usual coupling components. The diamines may be coupled in acid solution with diazo compounds, or may be treated with nitrous acid to obtain dyes of the Bismarck brown type. Examples are given of compounds prepared from 3-chlorosulphonyl-5-methyl-salicylic acid, and a number of similar compounds.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention:—270,313 (I.G. Farbenindustrie Akt.-Ges.), relating to conversion of high boiling hydrocarbons into low boiling hydrocarbons, see Vol. XVII, p. 63; 271,840 and 279,378 (Commercial Solvents Corporation), relating to catalysts for synthetic methanol production, see Vol. XVII, pp. 134 and 579; 271,873 (Titanium Alloy Manufacturing Co.), relating to zirconium compounds, see Vol. XVII, p. 134; 273,321 (I.G. Farbenindustrie Akt.-Ges.), relating to cyclic ketones, see Vol. XVII, p. 221; 273,342 (Newport Co.), relating to alkyl ethers of 3'-nitro-4'-hydroxy-orthobenzoyl-benzoic acid, see Vol. XVII, p. 221; 276,568 (Gewerkschaft der Steinkohlenzeche Mont-Cenis), relating to purification of hydrogen, see Vol. XVII, p. 445; 277,946 (Akt.-Ges. für Kohlensäure-industrie and E. B. Auerbach), relating to refining of mineral oils, etc., see Vol. XVII, p. 495; 280,939 (Silica Gel Corporation), relating to catalytic gels, see Vol. XVIII, p. 85; 284,206 (H. Flesch), relating to sulphonated oils and fats with a high content of combined sulphuric acid.

International Specifications not yet Accepted

296,006. AMINO-ALCOHOLS. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, August 22, 1927.

Aryl-aminoalkyl-ketones are hydrogenated to the corresponding carbinols in alkaline solution in the presence of nickel or metals of the platinum group, and in the absence of oxygen. An example is given of the treatment of α -methylamino-acetopyrocatechol to obtain methylaminomethyl-3:4-dioxy-phenyl-carbinol.

296,021. HYDROCARBON HALOGEN DERIVATIVES. M. Polanyi, 15, Waltraudstrasse, Zehlendorf, Berlin, and S. von Bogdandy, 14, Königin-Luisenstrasse, Dahlem, Berlin. International Convention date, August 23, 1927. Addition to 289,795.

Halogen derivatives of organic compounds are obtained as described in specification 289,795 (see THE CHEMICAL AGE, Vol. XIX, p. 11) using cadmium or zinc vapour as the initiator of the reaction.

296,022. PHOSPHATE FERTILIZERS. F. L. Schmidt, 8, Zietenstrasse, Lichterfelde, Berlin. International Convention date, August 23, 1927.

Potassium magnesium bicarbonate is first obtained by adding magnesium carbonate paste to concentrated potassium chloride solution and treating with carbon dioxide. The double salt is heated to 80° C. or treated with magnesium oxide or hydroxide at 40° C. to obtain magnesium and potassium carbonates. The potassium carbonate is roasted with mineral phosphate at 800°–1,300° C. to render the phosphate citrate-soluble.

296,049. CATALYTIC PROCESSES. Soc. Chimique de la Grande Paroisse, Azote et Produits Chimiques, 40, Rue du Colisée, Paris. International Convention date, August 24, 1927.

Water is treated between 15° C. and 550° C. with carbon monoxide to obtain alcohols, aldehydes, ketones, acids, ethers, esters, etc. A catalyst is employed containing one of the series potassium, sodium, magnesium, vanadium, chromium, molybdenum, manganese, iron, copper, zinc, cadmium, mercury, lead, arsenic, or antimony, with one of the series beryllium, magnesium, aluminium, silicon, calcium, etc. Examples are given of the production of alcohols using manganese carbonate, magnesia and alumina; formic acid using thorium oxide and potassium carbonate; ethers using copper, thorium and bismuth compounds; alcohols using manganese oxide, magnesium oxide, and aluminium oxide, and several other catalysts.

296,071. CATALYTIC OXIDATION OF ORGANIC COMPOUNDS. Selden Co., 339, 2nd Avenue, Pittsburg, U.S.A. (Assignees of A. O. Jaeger, 9, Grandview Avenue, Crafton, Pa., U.S.A.) International Convention date, August 26, 1927.

The catalysts described in 296,048 above are used in the oxidation of organic compounds in the vapour phase, and a large number of examples of the catalyst are given. Examples of oxidations effected include benzene, toluene, phenol, tar phenols or furfural to maleic and fumaric acids, cresol to salicyl aldehyde and salicylic acid, toluene and substituted derivatives, xylenes, pseudo-cumene, mesitylene, and paracymene to the aldehydes and acids, naphthalene to naphthoquinone, phthalic anhydride, and maleic acid, phthalic anhydride to maleic acid and fumaric acid, anthracene to anthraquinone, phenanthrene to phenanthraquinone and diphenic acid, acenaphthene to acenaphthylene, acenaphthoquinone, bis-acenaphthylidenedione, naphthaldehydic acid, naphthalic anhydride, and hemimellitic acid, fluorene to fluorenone, eugenol and isoeugenol to vanillin and vanillic acid, methyl alcohol and methane to formaldehyde, ethyl alcohol to acetic acid, and ethylene chlorhydrin to chloracetic acid.

296,074. POTASSIUM MANGANATE. Soc. Chimique des Usines du Rhône, 21, Rue Jean-Goujon, Paris. International Convention date, August 26, 1927. Addition to 292,991.

In the process for preparing potassium manganate described in specification 292,991 (see THE CHEMICAL AGE, Vol. XIX, p. 195) weaker potash lye can be used if the temperature is raised to 210°–220° C.

LATEST NOTIFICATIONS.

298,939. Synthetic resins from aromatic hydrocarbons. Krishna-murthy, P. October 17, 1927.

298,972. Method of producing alkyl esters of abietic acid. Hercules Powder Co. October 18, 1927.

298,981. Method of producing 2, 4, 6-trinitro-1, 3, 5-triazido-benzene. Turek, Dr. O. October 18, 1927.

299,302. Process for removing ammonia and sulphuretted hydrogen from gases. Hansen, Dr. C. J. October 22, 1927.

299,048. Manufacture and production of acetone from acetylene. I.G. Farbenindustrie Akt.-Ges. October 21, 1927.

298,955. Manufacture of oxythionaphthenes. I.G. Farbenindustrie Akt.-Ges. October 17, 1927.

299,055. Process for protecting wool, fur, and the like from attack by moth. I.G. Farbenindustrie Akt.-Ges. October 20, 1927.

299,019. Production of hydrocyanic acid. California Cyanide Co., Inc. October 19, 1927.

299,020. Manufacture and production of liquid and other hydrocarbons and derivatives thereof by the destructive hydrogenation of carbonaceous materials. I.G. Farbenindustrie Akt.-Ges. August 7, 1926.

- 299,021. Manufacture and production of liquid and other hydrocarbons and derivatives thereof by the destructive hydrogenation of carbonaceous materials. I.G. Farbenindustrie Akt.-Ges. August 7, 1926.
- 299,064. Method of producing sulphuric acid and halogen substitutes, or sulphuric acid, or halogen-substituted functional derivatives of formaldehyde. Fuchs, Dr. K., and Katscher, Dr. E. October 21, 1927.
- 299,069. Process of producing dyeings and prints. I.G. Farbenindustrie Akt.-Ges. October 20, 1927.
- 299,319. Manufacture of chloracetaldehyde. I.G. Farbenindustrie Akt.-Ges. October 22, 1927.
- 299,326. Process for improving acyl cellulose. I.G. Farbenindustrie Akt.-Ges. October 22, 1927.
- 299,327. Process for the manufacture of halogen-aryl-thioglycolic acids. I.G. Farbenindustrie Akt.-Ges. October 22, 1927.
- 299,330. Manufacture of acetone. Consortium für Elektrochemische Industrie Ges. October 22, 1927.
- 299,331. Manufacture of azo-dyestuffs. Soc. of Chemical Industry in Basle. October 22, 1927.
- 299,332. Manufacture of azo-dyestuffs. I.G. Farbenindustrie Akt.-Ges. October 21, 1927.

Specifications Accepted with Date of Application

- 272,528. Compounds of the perylene series, Manufacture of. I.G. Farbenindustrie Akt.-Ges. June 9, 1926.
- 273,276. Esters of fatty acids and mixtures containing fatty acids, Manufacture of. E. Wecker. June 23, 1926.
- 274,095. Cyclic ketones, Manufacture of. I.G. Farbenindustrie Akt.-Ges. July 8, 1926. Addition to 273,321.
- 274,103. Naphthalene 1:4:5:8-tetracarboxylic acid, Manufacture of. I.G. Farbenindustrie Akt.-Ges. July 9, 1926.
- 274,488. Crotonic aldehyde and its homologues, Process for the Manufacture of. Distilleries des Deux-Sèvres. July 14, 1926.
- 274,846. Treatment of a metallic, organic or other compound, or a gas, by a gaseous agent serving to enter into reaction therewith. Soc. Internationale des Procédés Prudhomme Houdry. July 23, 1926.
- 275,592. Exothermic chemical reactions, Processes for carrying out. Soc. l'Air Liquide, Soc. Anon. pour l'Etude et l'Exploitation des Procédés G. Claude. August 9, 1926.
- 277,342. Benzantrones and intermediate products, Manufacture of. I.G. Farbenindustrie Akt.-Ges. September 10, 1926. Addition to 268,830.
- 280,169. Tetra-ethyl lead, Processes of producing. W. S. Calcott, A. E. Parmelee and F. R. Lorrman. November 3, 1926.
- 280,501. Concentrated acetic acid from dilute acetic acid, Process of recovering. H. Suida. November 9, 1926.
- 281,691. Concentration of nitric acid. H. Frischer. December 6, 1926.
- 281,610. High per cent. calcium cyanamide or magnesium cyanamide or mixtures thereof, Production of. N. Caro and A. R. Frank. December 2, 1926.
- 283,926. Aluminium alloys and processes of making the same. P. Berthelemy and H. de Montby. January 20, 1927. Addition to 252,028.
- 287,450. Resistance to corrosion of magnesium and magnesium alloys, Process of improving. I.G. Farbenindustrie Akt.-Ges. March 19, 1927.
- 288,171. Highly chlorinated perylenes, Manufacture of. F. Bensa. April 2, 1927.
- 288,314. Copper alloys. Metallbank und Metallurgische Ges. Akt.-Ges. April 9, 1927. Addition to 286,616.
- 298,518. Polyazo dyestuffs Process for the manufacture of. A. Carpmal. (I.G. Farbenindustrie Akt.-Ges.). July 6, 1927.
- 298,520. White lead, Manufacture of—by electrolysis. R. S. Carreras. July 7, 1927. Addition to 277,723.
- 298,546. Adsorption agents from carbonaceous materials, Production of. O. Schober. June 9, 1927.
- 298,550. Sulphamic acids of aromatic secondary bases, Manufacture of. O. Y. Imray. (I.G. Farbenindustrie Akt.-Ges.). July 8, 1927.
- 298,584. Hydrocarbons of high molecular weight, Manufacture and production of. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.). June 9, 1927.
- 298,587. Bismuth oxide, bismuth carbonate, and other compounds of bismuth, Manufacture of. R. S. Carreras. July 7, 1927.
- 298,667. Aliphatic anhydrides, Manufacture of. British Celanese, Ltd., H. Dreyfus and C. I. Haney. July 14, 1927.
- 298,670. Iodine from crude nitrate of soda, Process of recovering. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.). July 14, 1927.
- 298,674. Water soluble anthraquinone glucosides, Process for the manufacture of. A. Carpmal. (I.G. Farbenindustrie Akt.-Ges.). July 14, 1927.
- 298,680. Condensation products of phenols, Manufacture of. British Dyestuffs Corporation, Ltd. and E. E. Walker. July 15, 1927.
- 298,696. Vat dyestuffs of the anthraquinone series, Process for the manufacture of. A. Carpmal. (I.G. Farbenindustrie Akt.-Ges.). July 18, 1927.
- 298,697. Azo dyestuffs insoluble in water, Process for the manufacture of. A. Carpmal. (I.G. Farbenindustrie Akt.-Ges.). July 18, 1927.
- 298,704. Oxidizing paraffins, waxes, and the like. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.). July 20, 1927.
- 298,714. Cobalt carbonyl, Manufacture and production of. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.). July 28, 1927. Addition to 250,132.
- 298,726. Purification of gases. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.). August 10, 1927.
- 298,736. Flotation processes for the treatment of coal, ores, and the like. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.). August 19, 1927.
- 298,775. Derivatives of pyrazolanthrone, Manufacture of. O. Y. Imray. (I.G. Farbenindustrie Akt.-Ges.). October 21, 1927.
- 298,778. Esters of silicic acid, Production of. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.). October 24, 1927.
- 298,819. Cellulose acetate, Manufacture of. Sir J. W. Bulmer. January 2, 1928.
- 298,823. Transforming into a water-soluble form, organic substances which are per se insoluble in water, Process of. A. L. Mond. (I.G. Farbenindustrie Akt.-Ges.). January 11, 1928.
- 298,545. Vat dyestuffs of the anthraquinone series, Manufacture of. J. Y. Johnson. (I.G. Farbenindustrie Akt.-Ges.). June 7, 1927.
- 298,684. Wet treatment of lead-bearing materials involving filtration. S. C. Smith. April 5, 1927. Addition to 264,569.
- 294,143. Electrolytically refining antimony, Process of. Norddeutsche Affinerie. July 18, 1927.
- 294,265. Hydrogen peroxide, Process for manufacturing. P. Askenasy. July 21, 1927.

Applications for Patents

- Barnett and Foster, Blaxter, A. P., and Blaxter, A. P. L. Carbonating-apparatus. 30,972. October 25.
- Carpmal, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of discharge basic dyeings. 30,687. October 23.
- Carpmal, A., and I.G. Farbenindustrie Akt.-Ges. Dyeing, etc., materials. 30,688. October 23.
- Carpmal, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of ortho hydroxy azo dyestuffs. 30,689. October 23.
- Carpmal, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of diazo amino compounds. 30,853. October 24.
- Carpmal, A., and I.G. Farbenindustrie Akt.-Ges. Method of supplying heat for effecting chemical reactions. 30,854. October 24.
- Carpmal, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of alkyl aralkylethers of colloidal carbohydrates. 30,962. October 25.
- Coffey, S., and Imperial Chemical Industries, Ltd. Manufacture of sulphonated oils. 30,715. October 23.
- Consortium für Elektrochemische Industrie Ges. Manufacture of acetone. 30,591. October 22. (Germany, October 22, 1927.)
- Dreyfus, H. Production of aliphatic compounds. 30,643. October 23.
- Gibson, W., Henshaw, C. R., and Imperial Chemical Industries, Ltd. Purification of triaryl phosphates. 30,814. October 24.
- I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of fertilisers. 30,509. October 22.
- I.G. Farbenindustrie Akt.-Ges., and Johnson J. Y. Recovery of organic acids. 30,510. October 22.
- I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of aluminium chloride. 30,794. October 24.
- I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of pulverisable highly-active silica. 31,224. October 27. (June 27, 1927.)
- I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of alkali metal ferro-cyanides. 31,225. October 27.
- I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of preparations for treating fibrous materials. 31,227. October 27.
- I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of catalysts. 31,228. October 27.
- I.G. Farbenindustrie Akt.-Ges. Manufacture of chloracetaldehyde. 30,524. October 22. (Germany, October 22, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Acyl cellulose. 30,550. October 22. (Germany, October 22, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Manufacture of halogenaryl-thioglycolic acids. 30,551. October 22. (Germany, October 22, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Manufacture of azo-dyestuffs. 30,593. October 22. (Germany, October 21, 1927.)
- I.G. Farbenindustrie Akt.-Ges. Process of hydrogenating polyhydroxy compounds. 30,810. October 24. (Germany, October 24, 1927.)

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.
 ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.
 ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.
 ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.
 ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
 AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.
 BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.
 BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.
 BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags carriage paid any station in Great Britain.)
 CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.
 COPPER SULPHATE.—£25 to £25 10s. per ton.
 METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 3d. to 1s. 8d. per gall., pyridinised industrial, 1s. 5d. to 1s. 10d. per gall.; mineralised, 2s. 4d. to 2s. 8d. per gall.; 64 O.P., 1d. extra in all cases.
 NICKEL SULPHATE.—£38 per ton d/d.
 NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
 POTASH CAUSTIC.—£30 to £33 per ton.
 POTASSIUM BICHROMATE.—4½d. per lb.
 POTASSIUM CHLORATE.—3½d. per lb., ex wharf, London, in cwt. kegs.
 SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.
 SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.
 SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.
 SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.
 SODIUM ACETATE 97/98%.—£21 per ton.
 SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.
 SODIUM BICHROMATE.—3½d. per lb.
 SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.
 SODIUM CHLORATE.—2½d. per lb.
 SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.
 SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.
 SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.
 SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.
 SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.
 SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6½d. to 6¾d. per lb. Crude 60's, 2s. to 2s. 3d. per gall. 1029—1s. 11d. per gall.
 ACID CRESYLIC 99/100.—2s. 5d. to 3s. per gall. 97/99.—2s. 4d. to 2s. 5d. per gall. Pale, 95%, 1s. 10d. to 2s. 2d. per gall. Dark, 1s. 9d. to 1s. 11d.
 ANTHRACENE.—A quality, 2d. to 2½d. per unit. 40%, £5 per ton.
 ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.
 BENZOLE.—Prices at works: Crude, 10½d. to 11d. per gall.; Standard Motor, 1s. 4½d. to 1s. 5d. per gall.; 90%, 1s. 7d. to 1s. 8d. per gall.; Pure, 1s. 10d. to 1s. 11d. per gall.
 TOLUOLE.—90%, 1s. 5d. to 1s. 11d. per gall. Firm. Pure, 1s. 10d. to 2s. per gall.
 XYLOL.—1s. 3d. to 2s. 4d. per gall. Pure, 1s. 6d. to 2s. 8d. per gall.
 CREOSOTE.—Cresylic, 20/24%, 9d. per gall.; Heavy, 7d. to 8d. per gall. Standard specification, middle oil, 6½d. to 6¾d. per gall. 5¾d. to 6d. per gall. ex works. Salty, 7½d. per gall.
 NAPHTHA.—Crude, 8½d. to 9d. per gall. Solvent 90/100, 1s. 1½d. to 1s. 2½d. per gall. Solvent 95/100, 1s. 2d. to 1s. 7d. per gall. Solvent 90/100, 11d. to 1s. 4d. per gall.
 NAPHTHALENE CRUDE.—Drained Creosote Salts, £1 to £5 per ton. Whizzed, £8 per ton. Hot pressed, £8 10s. per ton.
 NAPHTHALENE.—Crystals, £12 to £14 10s. per ton. Quiet. Flaked, £12 to £15 per ton, according to districts.
 PITCH.—Medium soft, 37s. 6d. to 45s. per ton, f.o.b., according to district. Nominal.
 PYRIDINE.—90/140, 5s. to 6s. 6d. per gall. 90/180, 2s. 3d. to 4s. per 1s. 9d. to 2s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:
 ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.
 ACID ANTHRANILIC.—6s. per lb. 100%.
 ACID BENZOIC.—1s. 8½d. per lb.
 ACID GAMMA.—4s. 6d. per lb.
 ACID H.—3s. per lb.
 ACID NAPHTHIONIC.—1s. 6d. per lb.
 ACID NEVILLE AND WINTHER.—4s. 9d. per lb.
 ACID SULPHANILIC.—8½d. per lb.
 ANILINE OIL.—8d. per lb. naked at works.
 ANILINE SALTS.—8d. per lb. naked at works.
 BENZALDEHYDE.—2s. 3d. per lb.
 BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.
 BENZOIC ACID.—1s. 8½d. per lb.
 o-CRESOL 29/31° C.—5½d. per lb.
 m-CRESOL 98/100%.—2s. 3d. to 2s. 6d. per lb.
 p-CRESOL 32/34° C.—2s. 3d. to 2s. 6d. per lb.
 DICHLORANILINE.—2s. per lb.
 DIMETHYLANILINE.—1s. 11d. per lb.
 DINITROBENZENE.—8½d. per lb. naked at works. £75 per ton.
 DINITROCHLOROBENZENE.—£84 per ton d/d.
 DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.
 DIPHENYLAMINE.—2s. 10d. per lb. d/d.
 a-NAPHTHOL.—2s. per lb. d/d.
 B-NAPHTHOL.—10d. per lb. d/d.
 a-NAPHTHYLAMINE.—1s. 3d. per lb.
 B-NAPHTHYLAMINE.—3s. per lb.
 o-NITRANILINE.—5s. 9d. per lb.
 m-NITRANILINE.—3s. per lb. d/d.
 p-NITRANILINE.—1s. 8d. per lb.
 NITROBENZENE.—6d. per lb. naked at works.
 NITRONAPHTHALENE.—1s. 3d. per lb.
 R. SALT.—2s. 2d. per lb.
 SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.
 o-TOLUIDINE.—8d. per lb.
 p-TOLUIDINE.—1s. 10d. per lb. naked at works.
 m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.
 N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand.
 Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.
 CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.
 IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.
 RED LIQUOR.—9d. to 10d. per gall.
 WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.
 WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.
 WOOD TAR.—£4 to £5 per ton.
 BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.
 ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.
 BARYTES.—£2 16s. 10d. to £3 10s. per ton, according to quality.
 CADMIUM SULPHIDE.—3s. 9d. to 4s. 6d. per lb.
 CARBON BISULPHIDE.—£25 to £27 10s. per ton, according to quantity.
 CARBON BLACK.—5½d. per lb., ex wharf.
 CARBON TETRACHLORIDE.—£45 to £54 per ton, according to quantity. drums extra.
 CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
 DIPHENYLGUANIDINE.—3s. 9d. per lb.
 INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5d. to 6½d. per lb.
 LAMP BLACK.—£35 per ton, barrels free.
 LEAD HYPOSULPHITE.—9d. per lb.
 LITHOPHON, 30%.—£22 10s. per ton.
 MINERAL RUBBER "RUBPRON".—£13 12s. 6d. per ton, f.o.r. London.
 SULPHUR.—£9 to £11 per ton, according to quality.
 SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.
 SULPHUR PRECIP. B.P.—£55 to £60 per ton.
 THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.
 THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.
 VERMILION, PALE OR DEEP.—7s. to 7s. 2d. per lb.
 ZINC SULPHUR.—11d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.
 ACID, ACETYL SALICYLIC.—2s. 4d. to 2s. 5d. per lb.
 ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity.
 Solely ex Gum, 1s. 3d. to 1s. 6d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—2s. 9d. to 3s. per lb.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. 10½d. per lb.

ACID, SALICYLIC, B.P. PULV.—1s. 4½d. to 1s. 6d. per lb. Technical.—10½d. to 11½d. per lb.

ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.

ACID, TARTARIC.—1s. 4½d. per lb., less 5%.

ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.

AMIDOL.—7s. 6d. to 9s. per lb., d/d.

AMIDOPYRIN.—7s. 9d. to 8s. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity. 18s. per lb. ex Gum.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimed, 1s. per lb.

ATROPINE SULPHATE.—9s. per oz.

BARBITONE.—5s. 9d. to 6s. per lb.

BENZONAPHTHOL.—3s. to 3s. 3d. per lb. spot.

BISMUTH CARBONATE.—9s. 9d. per lb.

BISMUTH CITRATE.—9s. 3d. per lb.

BISMUTH SALICYLATE.—8s. 9d. per lb.

BISMUTH SUBNITRATE.—8s. 3d. per lb.

BISMUTH NITRATE.—Cryst. 5s. 9d. per lb.

BISMUTH OXIDE.—12s. 3d. per lb.

BISMUTH SUBCHLORIDE.—10s. 9d. per lb.

BISMUTH SUBGALLATE.—7s. 9d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.

BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts., 11d. per lb.

BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Ammonium, 2s. to 2s. 3d. per lb.; potassium, 1s. 8½d. to 1s. 11½d. per lb.; sodium, 1s. 11d. to 2s. 2d. per lb.; granulated, ½d. per lb. less; all spot. Large quantities at lower rates.

CALCIUM LACTATE.—B.P., 1s. 2½d. to 1s. 3d. per lb.

CAMPHOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.

CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.

CHLOROFORM.—2s. 5½d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

ETHERS.—S.G. 730—11d. to 1s. 0d. per lb., according to quantity; other gravities at proportionate prices.

FORMALDEHYDE, 40%.—37s. per cwt., in barrels ex wharf.

GUAIACOL CARBONATE.—4s. 6d. to 4s. 9d. per lb.

HEXAMINE.—1s. 11d. to 2s. 2d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.

HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 3d. per lb., for 28 lb. lots; potassium, 3s. 7d. per lb.; sodium, 3s. 6d. per lb.

IRON AMMONIUM CITRATE.—B.P., 2s. 11d. to 3s. 2d. per lb. Green, 3s. 4d. to 3s. 7d. per lb.; U.S.P., 3s. to 3s. 3d. per lb.

IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.

IRON QUININE CITRATE.—B.P., 8½d. to 9½d. per oz.

MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.

MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb.

MENTHOL.—A.B.R. recrystallised B.P., 24s. 6d. per lb. net; Synthetic, 10s. 6d. to 11s. 6d. per lb.; Synthetic detached crystals, 10s. 6d. to 16s. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.

MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, crystals, 8s. 4d. to 8s. 5d. per lb., levig., 7s. 10d. to 7s. 11d. per lb.; Corrosive Sublimate, Lump, 6s. 7d. to 6s. 8d. per lb., Powder, 6s. to 6s. 1d. per lb.; White Precipitate, Lump, 6s. 9d. to 6s. 10d. per lb., Powder, 6s. 10d. to 6s. 11d. per lb., Extra Fine, 6s. 11d. to 7s. per lb.; Calomel, 7s. 2d. to 7s. 3d. per lb.; Yellow Oxide, 7s. 8d. to 7s. 9d. per lb.; Persulph., B.P.C., 6s. 11d. to 7s. per lb.; Sulph. nig., 6s. 8d. to 6s. 9d. per lb. Special prices for larger quantities.

METHYL SALICYLATE.—1s. 3d. to 1s. 6d. per lb.

METHYL SULPHONAL.—8s. 9d. to 9s. per lb.

METOL.—9s. to 11s. 6d. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 4d. per lb.

PHENACETIN.—2s. 5d. to 2s. 8d. per lb.

PHENAZONE.—3s. 9d. to 4s. per lb.

PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—96s. per cwt., less 2½ per cent.

POTASSIUM CITRATE.—B.P.C., 2s. 9d. to 3s. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.

QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins.

RESORCIN.—2s. 10d. to 3s. per lb., spot.

SACCHARIN.—47s. per lb.; in quantity lower.

SALOL.—2s. 3d. to 2s. 6d. per lb.

SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.

SODIUM CITRATE, B.P.C., 1911—2s. 6d. to 2s. 9d. per lb., B.P.C. 1923—2s. 10d. to 2s. 11d. per lb. U.S.P., 2s. 9d. to 3s. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb., carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—95s. to 100s. per cwt. Crystals, 4s. per cwt. extra.

SODIUM SALICYLATE.—Powder, 1s. 6½d. to 1s. 7d. per lb. Crystal, 1s. 7½d. to 1s. 8d. per lb.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb.

SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.

SULPHONAL.—6s. 6d. to 6s. 9d. per lb.

TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 3d. per lb.

THYMOL.—Puriss., 9s. 6d. to 9s. 9d. per lb., according to quantity. Firmer. Natural, 12s. 6d. per lb.

Perfumery Chemicals

ACETOPHENONE.—6s. 6d. per lb.

AUBEPINE (EX ANETHOL).—11s. per lb.

AMYL ACETATE.—2s. 6d. per lb.

AMYL BUTYRATE.—4s. 9d. per lb.

AMYL SALICYLATE.—2s. 9d. per lb.

ANETHOL (M.P. 21/22° C.).—5s. 3d. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—1s. 10d. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—1s. 10d. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.

BENZYL BENZOATE.—2s. 3d. per lb.

CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb.

COUMARIN.—8s. 6d. per lb.

CITRONELLOL.—13s. per lb.

CITRAL.—8s. per lb.

ETHYL CINNAMATE.—6s. per lb.

ETHYL PHTHALATE.—2s. 9d. per lb.

EUGENOL.—10s. 6d. per lb.

GERANIOL (PALMAROSA).—20s. per lb.

GERANIOL.—6s. 6d. to 11s. per lb.

HELIOTROPINE.—5s. per lb.

ISO EUGENOL.—16s. per lb.

LINALOL.—Ex Bois de Rose, 13s. per lb. Ex Shui Oil, 9s. 3d. per lb.

LINALYL ACETATE.—Ex Bois de Rose, 17s. 6d. per lb. Ex Shui Oil Linalol, 10s. 6d. per lb.

METHYL ANTHRANILATE.—8s. per lb.

METHYL BENZOATE.—4s. per lb.

MUSK KETONE.—34s. per lb.

MUSK XYLOL.—7s. per lb.

NEROLIN.—3s. 9d. per lb.

PHENYL ETHYL ACETATE.—11s. per lb.

PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.

RHODINOL.—45s. per lb.

SAFROL.—1s. 5d. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN.—16s. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. 6d. per lb.

ANISE OIL.—2s. 9d. per lb.

BERGAMOT OIL.—24s. per lb.

BOURBON GERANIUM OIL.—22s. per lb.

CAMPHOR OIL.—9d. per lb.

CANANGA OIL, JAVA.—12s. per lb.

CINNAMON OIL LEAF.—6s. 6d. per oz.

CASSIA OIL, 80/85%.—7s. per lb.

CITRONELLA OIL.—Java, 2s. per lb., c.i.f. U.K. port. Ceylon, pure, 1s. 11d. per lb.

CLOVE OIL (PURE 90/92%).—8s. per lb.

EUCALYPTUS OIL, AUSTRALIAN, B.P. 70/75%.—2s. per lb.

LAUENDER OIL.—Mont Blanc, 48/50%, Esters, 16s. 3d. per lb.

LEMON OIL.—14s. 6d. per lb.

LEMONGRASS OIL.—4s. per lb.

ORANGE OIL, SWEET.—18s. 6d. per lb.

OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 75s. per oz.

PALMA ROSA OIL.—12s. 6d. per lb.

PEPPERMINT OIL.—Wayne County, 15s. 3d. per lb.; Japanese, 9s. 3d. per lb.

PETITGRAIN.—8s. per lb. Sandalwood, Mysore, 28s. per lb., 95% 19s. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, November 1, 1928.

THE chemical market has been fairly active during the past week, prices of the majority of products being extremely firm and the tendency for any change is in the upward direction. Consumers are already showing interest in contracts for 1929 delivery. Export business is maintained.

General Chemicals

ACETONE continues scarce at the unchanged price of £75 to £77 10s per ton, according to quantity, and this figure is extremely firm.

ACID ACETIC is unchanged, and in fair day to day demand.

ACID FORMIC.—More interest is being shown in this product and inquiry has been much better, 85% material is on offer at £45 per ton.

ACID OXALIC.—This material is going more rapidly into consumption and the price is firm at £30 10s. to £32 10s., according to quantity.

ACID LACTIC is a bright market, with price remaining firm at £43 per ton for 50% by weight, technical quality.

ACID TARTARIC remains a firm market with supplies on the short side and price is maintained at 1s. 4½d. to 1s. 4¼d. per lb., less usual discount.

AMMONIUM CHLORIDE shows little alteration and the product is only in small demand.

ALUMINA SULPHATE.—High prices are being asked for this product and the material is rather scarce for near delivery, the forward position is extremely firm and a further advance is not unlikely.

BARIUM CHLORIDE.—The question of spot supplies is now becoming acute. As there is very little material available for early delivery, the price has further advanced and is firm at £11 5s. to £12 per ton. The forward position is also extremely firm with makers well sold ahead.

COPPER SULPHATE.—There has been a substantial increase in the price of this product during the past week in sympathy with the metal, demand is active especially on shipment account and a further advance in values is not unlikely.

CREAM OF TARTAR is firmly held at £98 10s. to £100, less usual discount for the best grades B.P. 99/100%, demand is fair.

FORMALDEHYDE is in increased demand and price is now steady at £39 per ton, ex wharf.

LEAD ACETATE is firm and in good request at £42 10s. for white and £1 per ton less for brown.

LEAD NITRATE is steady at £36 10s. to £37 with an improved demand.

LIME ACETATE remains firm with supplies of grey quality rather restricted.

METHYL ACETONE.—Price is inclined to advance to a figure more in keeping with the equivalent value of acetone. Demand is brisk at the present price, £58 to £60 per ton for 45% material.

POTASSIUM CARBONATE is unchanged at £25 to £27 per ton for 96/98% with a firmer tendency setting in which may result in higher prices shortly.

POTASSIUM CHLORATE is firm and in good request at £28 per ton. The forward position indicates that slightly higher prices may be asked shortly.

POTASSIUM PERMANGANATE.—Demand is rather restricted and price is unchanged at 5½d. to 5¼d. per lb. for best B.P. grades.

POTASSIUM PRUSSATE.—Demand is active at £63 10s. to £65 10s., according to quantity, and makers are well occupied with business, in some cases a slight delay is noticed owing to accumulation of orders.

SODIUM ACETATE.—This article, if anything, is scarcer and price is extremely firm at £21 10s. to £22, and only limited supplies are available for near delivery.

SODIUM PHOSPHATE.—An improved demand is noticed here and supplies are on the light side, the present price is £12 to £13 per ton.

SODIUM PRUSSATE maintains its firm position with supplies inclined to be on the short side, price unchanged at 4½d. to 5¼d. per lb.

TARTAR EMETIC continues active at the unchanged price of 10½d. per lb.

ZINC SULPHATE is steady and in good request at £11 10s. to £11 15s. per ton.

Coal Tar Products

The coal tar product market shows a little more activity, and prices are stiffening for solvents and benzols.

MOTOR BENZOL has increased to 1s. 7d. per gallon on rails, naked.

SOLVENT NAPHTHA remains firm at 1s. 2¼d. per gallon, on rails.

HEAVY NAPHTHA is unchanged at 1s. 1d. to 1s. 1¼d. per gallon, on rails.

CREOSOTE OIL is still weaker, and small quantities can be bought at 5½d. per gallon in the north, and at 6d. per gallon in London.

CRESYLIC ACID is still weak, although there is a little more activity. The 98/100% quality is quoted at about 2s. 2d. per gallon, f.o.b. and the dark quality, 95/97%, is quoted at 1s. 10d. per gallon, f.o.b. naked.

NAPHTHALENE remains firm, at £5 per ton for the 74/76 quality, and £6 to £6 10s. per ton for the 76/78 quality.

PITCH is in slightly better demand, but prices remain round 40s. to 45s., f.o.b.

Latest Oil Prices

LONDON, October 31.—LINSEED OIL, steady but inactive. Spot, ex mill, £29 15s.; November to April, £28 12s. 6d.; May-August, £28 15s.; and September-December, £29 2s. 6d., naked. RAPE OIL steady. Crude extracted, £41; technical refined, £43, naked, ex wharf. COTTON OIL steady. Egyptian crude, £30 10s.; refined common edible, £36; and deodorised, £38, naked, ex mill. TURPENTINE inactive. American, spot, 43s. 6d.; November-December, 43s. 9d.; and January-April, 45s. per cwt.

HULL, October 31.—LINSEED OIL.—Spot to December, £29 5s.; January to August, £29. COTTON OIL.—Bombay crude, £29 10s.; Egyptian crude, spot and November-February, £30 10s.; edible refined, spot and November-February, £34; technical, £33 10s.; deodorised, £36. PALM KERNEL OIL.—Crushed, naked, 5½ per cent. £37 10s. GROUNDNUT OIL.—Crushed/extracted, £37 10s.; deodorised, £41 10s. SOYA OIL.—Extracted and crushed, £32 10s.; deodorised, £36. RAPE OIL.—Crude/extracted, £40 15s.; refined, £42 15s. per ton. TURPENTINE, 46s. per cwt., net cash terms, ex mill.

Nitrogen Products

Sulphate of Ammonia.—The demand for sulphate of ammonia continues satisfactory and the price remains steady at £9 11s. 9d. per ton, f.o.b. U.K. port, in single bags for prompt shipment. No fresh information has reached us from the United States or from the Continent. The home trade remains quiet.

Nitrate of Soda.—The sales reported during the last week demonstrate the continuance of the satisfactory demand which producers have been experiencing, especially in Europe and Egypt. The scale prices have stabilised the market in Europe and Egypt. United States re-sale material is changing hands at \$2.15 to \$2.20 per 100 lbs. for prompt delivery.

South Wales By-Products

SOUTH Wales by-products continue to present a featureless aspect. Business in all products is quiet, but values generally are unchanged. Pitch, which has a slightly better demand, continues to change hands round about 45s. to 50s. per ton prompt delivery. Refined tars, which are a good feature of the market, are unchanged, coke oven tar selling at from 7½d. to 8d. per gallon delivered, and gas-works tar round about 7½d. to 7¾d. per gallon, delivered. Crude tar has a moderate call round about 50s. per ton maker's works. Crude naphthalene is quoted round 80s. to 85s. per ton, but has practically no demand. A similar remark applies to whizzed at from 95s. to 100s. per ton. There has been a substantial increase in patent fuel exports, but, generally, both patent fuel and coke exports are still far from satisfactory. Patent fuel prices are unchanged, current quotations being 20s. to 21s. 6d., ex-ship Cardiff, and 19s. 6d. to 19s. 9d., ex-ship Swansea. Coke prices are unchanged, quotations being:—Foundry, 25s. to 36s. 6d. per ton; furnace, 20s. to 21s. per ton; foundry, at oven, 27s. 6d. to 33s. per ton; furnace, at oven, 19s. to 20s. per ton. Oil imports into Swansea over the last four ascertainable weeks amounted to 35,677.737 gallons—the best import over the monthly period recorded this year.

Exploiting Russian Potash

THE CENTRAL CONCESSION COMMITTEE for Soviet potash is (according to *The American Fertilizer*) at present in negotiation with several French, German and American groups, with a view of exploiting the Ural potash deposits. A proposal has been made to create a mixed Russo-French company which would deal exclusively with potash production, with a separate organisation of the Soviet authorities to handle sales.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinion.

Glasgow, October 31, 1928.

BUSINESS in the heavy chemical market has, if anything, been rather more promising during the past week, there, being an improved inquiry for export. Prices remain steady.

Industrial Chemicals

ACETONE, B.G.S.—Nominally £74 10s. to £77 10s., per ton, ex wharf; according to quantity, but very little available for immediate delivery.

ACID ACETIC, 98/100%.—Glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf. 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton. Powder, £32 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Price maintained at 6½d. per lb., delivered or f.o.b. U.K. ports in moderate demand.

ACID CITRIC, B.P. CRYSTALS.—Quoted from 2s. 10d. to 3s. per lb., less 5%, ex wharf, but very little available even at these advanced figures.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC, 80%.—£24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer from the continent at 3½d. per lb., ex wharf. Spot material quoted 3½d. per lb., ex store. In better demand.

ACID SULPHURIC.—£2 15s. per ton, ex works, for 144° quality. £5 15s. per ton for 168° quality. Dearsenicated quality, 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 1s. 4½d. per lb., less 5%, ex wharf. Offered for prompt shipment at 1s. 4d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE.—On offer at £5 10s. per ton, c.i.f. U.K. ports. Spot material quoted £5 15s. per ton, ex store.

ALUM, LUMP POTASH.—Quoted £8 7s. 6d. per ton, c.i.f. U.K. ports, prompt shipment from the continent. Crystal meal quoted £8 10s. per ton, ex store.

AMMONIA, ANHYDROUS.—Quoted 9½d. per lb., carriage paid, containers extra and returnable.

AMMONIA CARBONATE.—Lump £37 per ton; powdered £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA, LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals offered from the continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE, 98/100%.—On offer for prompt shipment from China at £39 10s. per ton, ex wharf.

ARSENIC, WHITE POWDERED.—Quoted £18 10s. per ton, ex wharf, prompt despatch from mines. Spot material on offer at £19 15s. per ton, ex store.

BARIUM CARBONATE, 98/99%.—Continental material quoted £10 per ton, c.i.f. U.K. ports. English material available at about £11 per ton, ex store.

BARIUM CHLORIDE.—Quoted £9 15s. per ton, c.i.f. U.K. ports, prompt shipment from the continent. Spot material on offer at £11 per ton, ex wharf.

BLEACHING POWDER.—British manufacturers' contract price to consumers, £6 12s. 6d. per ton, delivered minimum four-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price £4 5s. to £4 15s. per ton, according to quantity and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports for export.

COPPER SULPHATE.—Some spot material available at about £24 per ton, ex store.

FORMALDEHYDE, 40%.—Now quoted £36 per ton, c.i.f. U.K. ports. Spot material quoted at £38 5s. per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—On offer at £29 10s. per ton, ex store.

LEAD, WHITE.—Quoted £37 per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals quoted £41 15s. per ton, ex store. Brown on offer at about £40 per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. In moderate demand.

METHYLATED SPIRIT.—Industrial quality 64 O.P. quoted 1s. 4d. per gallon, less 2½% delivered.

POTASSIUM BICHROMATE.—4½d. per lb. delivered, minimum 4 ton lots. Under 4 ton lots ½d. per lb. extra.

POTASSIUM CARBONATE, 96/98%.—Offered from the Continent at £25 per ton, c.i.f. U.K. ports. Spot material available at £26 per ton, ex store.

POTASSIUM CHLORATE, 99½/100%. POWDER.—Now on offer £22 10s. per ton, c.i.f. U.K. ports. Crystals 20s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 5½d. per lb., ex wharf.

POTASSIUM PRUSSIAN (YELLOW).—Spot material quoted 6½d. per lb., ex store. Offered from the Continent at 6½d. per lb., ex wharf, prompt shipment.

SODA CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton, and 70/72%, £13 12s. 6d. per ton, minimum 4 ton lots, carriage paid, on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—On offer for prompt delivery at about £21 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised £10 10s. per ton ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3d. per lb. delivered buyers' works, minimum 4 ton lots. Under 4 and over 2 ton lots ½d. per lb. extra. Under 2 ton lots 3½d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality 27s. 6d. per ton extra. Light soda ash £7 3s. 9d. per ton, ex quay, minimum 4 ton lots with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4 ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4 ton lots.

SODIUM NITRATE.—Quoted £10 4s. per ton, carriage paid buyers' station for ordinary quality. Refined quality 2s. 6d. to 5s. per ton extra.

SODIUM NITRITE, 100%.—In moderate demand. Spot material quoted 4½d. per lb., ex store.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works, 52s. 6d. per ton delivered for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption: solid, 60/62%, £9 per ton; broken, 60/62%, £10 per ton; crystals, 30/32%, £7 2s. 6d. per ton, delivered buyers' works on contract, minimum 4 ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; ground American, £9 5s. per ton, ex store.

ZINC CHLORIDE, 98%.—British material now quoted £22 10s. per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Offered from the Continent at about £10 5s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Chemistry and Industrial Welfare

THE importance of the profession of chemistry with regard to the industrial welfare of the country was dealt with by Professor G. G. Henderson, Professor of Chemistry in Glasgow University, in an address delivered on Friday, September 26, to the members of the Scottish Section of the British Association of Chemists. The great majority of the public, said Professor Henderson, had no idea of the importance of the profession, and that was partly due, in the first case, to the fact that chemists did not assert themselves sufficiently, and in the second case to the fact that many people were ignorant of a chemist's functions. The chemist contributed in a large measure to the prosperity of all our industries, and the business of government, apart from politics, could not be carried on without his aid. As a remedy for that state of affairs, he, Professor Henderson, would suggest that the chemists should organise into one body representative of the whole profession, and should endeavour to educate their fellow-citizens through the agency of the Press. In Glasgow, through the columns of *The Glasgow Herald* and other newspapers, the chemists had in that respect set an example that the Press in other parts of Great Britain was beginning to follow. He believed that articles of the type published had done a great deal to bring to the minds of the people the actual importance of the chemist.

Manchester Chemical Market

(FROM OUR OWN CORRESPONDENT).

Manchester, November 1, 1928.

SOMEWHAT increased activity in certain of the Lancashire cotton towns continues to arouse hopes that a steady increase in the consumption of chemicals in the textile industry will before long be experienced. The demand on this market during the past week has not been particularly active, business being made up pretty well of small lots for prompt or near delivery dates. So far as prices are concerned, these are steady to firm generally and comparatively few weak spots are in evidence.

Heavy Chemicals

The demand for chlorate of soda here this week has been rather slow, but values show little change, offers being at 2½d. to 3d. per lb. In the aggregate a fair business is passing in the case of bleaching powder, though competition in this section is keen, with current values at from about £6 10s. to £7 per ton. There is a quiet demand about for phosphate of soda and prices are steady at round £12 10s. per ton. Buying interest in sulphide of sodium is somewhat sluggish, and occasional low offers of this material are reported, the commercial grade selling at about £8 per ton and the 60-65 per cent. concentrated solid at £9 10s. to £9 15s. There is a fairly active inquiry about for bichromate of soda, and at about 3d. per lb. quotations are well held. Alkali is in moderate request and offers are on a firm contract basis of £6 2s. 6d. per ton. With regard to saltcake, a slow business is being put through at up to £2 15s. per ton. Sales of hyposulphite of soda are of rather limited extent, with the photographic material ranging from £15 5s. to £15 10s. per ton and the commercial quality at about £9. Prussiate of soda remains a very steady section and a fair trade is passing; current offers of this range from 4½d. to 5½d. per lb., according to quantity. Caustic soda meets with a regular inquiry and quotations are firm at from £13 7s. 6d. to £15 7s. 6d. per ton. Bicarbonate of soda is well held at round £10 10s. per ton and a quietly steady trade is passing.

There has been no appreciable improvement in the sales of chlorate of potash, but prices are maintained at up to 3d. per lb. Offers of carbonate of potash are on a firm basis at from £26 to £26 10s. per ton and inquiry for this material this week has been pretty good. A fair call for caustic potash has also been reported at from £33 5s. per ton for prompt delivery of one to five ton lots. Permanganate of potash is moving off in moderate quantities, with values fractionally easier at about 5d. per lb. for the commercial material and 5½d. for the B.P. Bichromate of potash keeps steady in the neighbourhood of 4d. per lb., and with a fair inquiry in circulation supplies are not excessive. There has been no change in the position of yellow prussiate of potash which continues to be quoted at from 6½d. to 7½d. per lb.

A slight improvement in the demand for arsenic has been reported in some quarters, with white powdered, Cornish makes, steady at about £16 15s. per ton at the mines. Sulphate of copper is fairly firm at £25 10s. per ton, f.o.b., and a not unsatisfactory business is being put through. Some weakness is apparent in the case of the lead products, and the demand is relatively poor; nitrate is quoted at £34 10s. per ton, and white and brown acetate at £40 and £39. There has been little actual change in the position of the acetates of lime, although, if anything, quotations in this section have been shaded slightly during the past few days, with brown on offer at round £8 15s. per ton and grey at from £16 to £16 10s.

Acids and Tar Products

A steady demand for tartaric acid is being met with and values are steady at from 1s. 4½d. to 1s. 4¾d. per lb. With regard to citric acid there is still only a comparatively limited quantity of this available, and prices are nominal at round 2s. 9d. per lb. Acetic acid is in fair request, and quotations are maintained at £66 10s. per ton for glacial and £36 for the 80 per cent. commercial. Oxalic acid is in quietly steady demand at 3¾d. per lb.

Pitch is in poor request for the time of the year, and prices are easy at the equivalent of about £1 18s. per ton, f.o.b. Offers of creosote oil are being shaded slightly, and a quiet

business is being done at 6d. per gallon naked, or a little below this. Crude carbolic acid is quoted at from 1s. 11d. to 2s. per gallon, according to position, with crystals steady and in fairly active demand at up to 6½d. per lb. Current quotations for solvent naphtha are at round 1s. 1d. per gallon.

"Random Thoughts on Chemical Themes"

By Dr. H. H. Hodgson

At a joint meeting of the Scottish Sections of the Society of Chemical Industry, Institute of Chemistry, and Society of Dyers and Colourists held in Glasgow on October 19 (Mr. T. Ramsay in the chair), an address entitled "Some Random thoughts on Chemical Themes," was delivered by Dr. Herbert H. Hodgson, Head of the Chemical Department of the Technical College, Huddersfield.

The address took the form of a review of recent utterances at public conferences during 1928 from the standpoints of chemist and teacher. "Science and Craftsmanship" by Sir W. Bragg received primary attention. In consequence of the revolution in industry now in progress due to the ever-increasing dependence of industry on process and ever diminishing reliance on manual skill, the importance of humanistic non-vocational studies in our national scheme of education was stressed, since in a democratic age when great issues are decided by a majority vote the necessity for all sections of the population to meet on common ground somewhere becomes self-evident. The work of research associations was held to justify Sir W. Bragg's opinion that "much of our hope for the future is built upon their work."

The position of the chemist in industry was considered and a rapid survey made of large-scale operations which have little or no laboratory equivalent, viz., agitation and stirring, crystallisation, dissolution of solids, filtration, drying, packing of columns and towers, design of fractionating and rectifying columns, corrosion, and continuous processes. Above all the importance of a knowledge of costing was emphasised. The growth of a new class of operative due to the research associations was held by Sir W. Bragg to be the required "intermediate link" between school and industry and the consequences of this new factor were discussed.

The intrinsic dangers of mass production, nationalisation, standardisation, etc., were considered and the vital need for continuous research, pure and applied, pointed out. Lord Melchett's valuable presidential address to the Association of Technical Associations was recommended for reading as a great stimulant for the science teacher; the national importance of contentment in employment brought about by a proper realisation of the underlying interest in all scientific operations being impossible to over-rate. It was argued that teachers of experimental science, however, must have research experience, only such men being capable of inspiring pupils both by precept and example. In this connection the present and growing evils attendant upon the methods of secondary education now in practice were pointed out, together with the pernicious types of school examination now in vogue.

Current opinion as judged by recent public utterances appears to be abandoning organisation as a sole means of solution for our problems and turning towards the development of the individual as the true aim of educational endeavour. A quotation from Sir W. Bateson concluded the paper: "The one reasonable aim of man is that life shall be made as happy as it can be made. There is only one way of attaining that aim—the pursuit of natural knowledge."

The Tinplate Industry

REFERRING to the recent Anglo-American tinplate agreement, the French Press states that the results of this new agreement will be carefully studied by the Continental producers, as in the spring of this year there was some talk of an agreement between the United Kingdom and the Continent with regard to tinplates. *L'Usine* states that the tinplate industry in France and in Germany has developed during the past few years, and both these countries are now becoming exporters. *L'Usine* expresses the view that the time is not far off when some agreement must be reached between the Continental and British tinplate manufacturers and the Anglo-American bloc.

Company News

ANGELA NITRATE Co.—The directors have declared an interim dividend of 10 per cent., or 2s. per share, less income tax at 4s. in £, payable on November 19.

BRITISH MATCH CORPORATION.—The board has declared an interim dividend of 2 per cent., free of income tax, on the shares of the British Match Corporation, payable November 15, 1928.

CHEMICAL NATIONAL BANK OF NEW YORK.—A statement of condition on October 3 shows: Capital stock, surplus and undivided profits \$26,399,137; deposits \$162,313,073; total assets \$225,593,058.

ETABLISSEMENTS KUHLMANN.—It is understood that an offering of shares will be made shortly in the international market, the new capital being required to finance further expansion of the company.

ERINOID.—The net profit for the year to August 31 was £21,268 (against £17,068); the final dividend is at the rate of 4 per cent., making 7 per cent. for the year; to general reserve is placed £5,239; to taxation reserve, £4,200, leaving, to be carried forward, £5,184.

LEWIS BERGER AND SONS.—The profit for the year to July 31 last was £114,156, making an available total of £174,333. The final ordinary dividend is 5 per cent., making 10 per cent. for the year. The sum of £50,000 is placed to general reserve, £20,000 to contingencies reserve and £23,758 is carried forward.

ANGLO-CHILEAN CONSOLIDATED NITRATE CORPORATION.—The statement for the six months ended June 30 last shows, after deducting interest on floating debt, taxes, etc., net earnings of \$1,434,842, against \$119,759 for the first half of 1927 and \$494,298 for the whole of 1927. After paying all debenture interest, there remains \$243,145 before depreciation and depletion.

E. I. DU PONT DE NEMOURS Co.—Reports have been issued showing that \$6.84 per share was earned on the 2,661,658 shares of the common stock for the third quarter of 1928. This compared with \$4.24 earned during the corresponding period last year. The net income was \$19,581,897, as compared with \$12,488,554, while the earnings from the operations were \$6,589,643, which is an increase of \$2,098,922.

ANGLO-PERSIAN OIL Co.—For the year ended March 31 last, the directors state that the profit after allowing for depreciation, debenture interest, home charges, and royalty, amounts to £3,112,529 to which is added the balance brought forward of £2,246,880, making a total of £5,359,409. Of this amount extra depreciation absorbs £453,267, to Debenture stock redemption reserve is placed £200,000, to amortisation reserve £100,000, and to general reserve £500,000, leaving £4,106,142. The directors recommend the payment on November 30 next of a dividend on the ordinary shares of 7½ per cent. per annum, less income tax, leaving £2,224,267, to be carried forward, subject to excess profits duty, if any, for the year ended March 31, 1921.

Proposed Sale of Nitrate Company's Property

At an extraordinary general meeting of the shareholders of the Barreñechea Nitrate Co., Ltd., to be held at Baltic House, Leadenhall Street, London, on Monday, November 5, the directors will seek shareholders' sanction to dispose of the company's oficina, nitrate grounds, plant and stocks in Chile to Señor Benito Rojo Lopez. The resolution to be submitted is in the following terms:—"That the sale of the company's oficina, nitrate grounds, plant and stocks in Chile on the terms of an agreement dated October 24, 1928, between the company of the one part and Señor Benito Rojo Lopez of the other part submitted to this meeting be approved and that the directors be requested to carry such agreement into effect." It is understood that the purchase price is £25,000, and in the event of the sale being carried through, it is expected that with the existing liquid assets a distribution will be made of not less than 15s. per £1 share, after providing for all liabilities, liquidation expenses, etc. The company owns 206,105 Peruvian estacas of nitrate grounds in Tarapaca. (A Peruvian estaca is equal to nearly 7 English acres.) The company's authorised and issued capital is £45,000 in £1 shares. The oficina was closed down in March, 1926. At the end of December, 1927, the company carried forward a deficit on

profit and loss account of £6,445. The last report said that owing to the continuance of the export duty, it had not been possible to resume operations. In 1920, the company's net profit was £33,090, but since then there has been a sharp decline, and last year there was a net loss of £2,595.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks, and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to November 24, 1928.

METROCITE.

494,336. Class 4. Raw, or partly prepared, vegetable, animal and mineral substances used in manufactures, not included in other classes. South Metropolitan Gas Co., 709, Old Kent Road, London, S.E.15; manufacturers.—August 22, 1928. (To be Associated. Sect. 24.)

Opposition to the Registration of the following Trade Marks can be lodged up to November 30, 1928.

LARYNOS.

495,268. Class 3. Chemical substances prepared for use in medicine and pharmacy. May and Baker, Ltd., Garden Wharf, Church Road, Battersea, London, S.W.11; manufacturers.—September 24, 1928.

NOSPRASEN.

495,234. Class 2. Chemical substances used for agricultural, horticultural, veterinary and sanitary purposes. Bayer Products, Ltd., 31 to 34, Basinghall Street, London, E.C.2; merchants and manufacturers.—September 22, 1928. (To be Associated. Sect. 24.)

AQUABIT.

495,233. Class 4. 495,233. Class 4. Raw, or partly prepared, vegetable, animal and mineral substances used in manufactures. Wm. Butler and Co. (Bristol), Ltd., Silverthorne Lane, St. Philips, Bristol; distillers, importers, manufacturers and refiners.—September 22, 1928. (To be Associated. Sect. 24.)

ALAMASTIC.

493,269. Class 1. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. The Durastic Bituminous Paint Co., Ltd., 1, Central Buildings, Westminster, London, S.W.1; paint manufacturers.—July 13, 1928.

LIK-O-LAK.

493,623. Class 1. Paints, varnishes, enamels, japans, lacquers, distempers, colours, driers and anti-corrosives. C. H. Leng and Sons, Stronghold Works, Sherbourne Road, Balsall Heath, Birmingham; manufacturers.—July 26, 1928.

EMULGO.

494,576. Class 1. Phosphatides for use as emulsifying agents for technical purposes. Hansa-Mühle-Gesellschaft mit Beschränkter Haftung (a Joint Stock Company organised under the laws of Germany), 3, Alsterdamm, Hamburg, Germany; manufacturers.—August 29, 1928. (To be Associated. Sect. 24.)

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal" have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

SULPHURIC ACID—CAUSTIC SODA.—Tenders are invited by the Posts and Telegraphs Department at Lourenço Marques for caustic soda and sulphuric acid. Local representation essential. Commissao Permanente de Compras, Curadoria de Patrimonia, Lourenço Marques.

SHELLAC-ORANGE, RUBIN, BUTTON AND GARNET LAC.—An agent in Berlin desires the representation of a British firm for the above. (Reference 370.)

For cars, motor boats and electrical risks

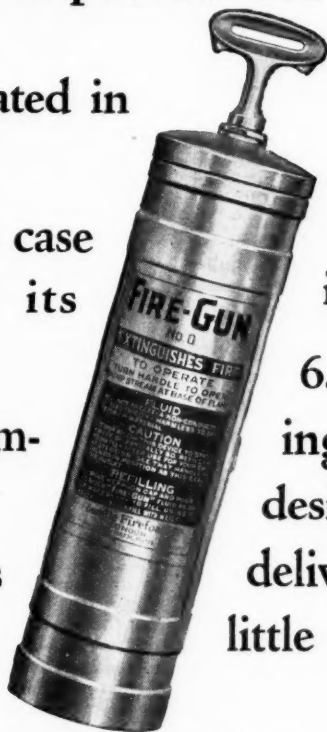
An improved C.T.C. Extinguisher.

1. It can be operated in any position.

2. Denting of the case does not affect its efficiency.

3. Leaking is eliminated.

4. The nozzle is protected.



5. No solder, which tends to cause corrosion, is used internally.

6. The double-acting pump is of special design to ensure quick delivery of fluid with little effort.

The "Fire-Gun" is designed for the combating of those fires which are so likely to occur on cars and motor boats or around electrical equipment. The special liquid used is a non-conductor of electricity.

If you have not yet seen the "Fire-Gun," one will be sent free for inspection and test.

Should the appliance not be retained, the cost of the return carriage will be sent upon application.

The "Fire-Gun" is approved by the Fire Offices' Committee, the Board of Trade and the Metropolitan Police. Foamite Firefoam, Limited, 55-57, Gt. Marlborough St., London, W.1.

Foamite Fire Protection

A Complete Engineering Service

Against Fire

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case, the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

AGUAS BLANCAS NITRATE CO. (1928), LTD., London, E.C. (M., 3/11/28.) Registered October 8, £250,000 debentures secured by Trust Deed dated October 1, 1928; charged on oficinas lands and nitrate grounds in Chile with work buildings, plant, etc., also general charge.

CONSOL PRODUCTS, LTD., Sunbury Common, essence manufacturers. (M., 3/11/28.) Registered October 19, series of debentures for £10,000 and premium of 5 per cent., present issue £6,825; general charge. *£6,500. July 30, 1928.

HADFIELD (GEORGE) AND CO., LTD., Liverpool, chemical manure manufacturers. (M., 3/11/28.) Registered October 19, charge securing increase in rate of interest on £20,000 debentures outstanding; general charge. *£78,500. March 31, 1928.

WESTERN VISCOSE SILK MILLS, LTD., Bristol. (M., 3/11/28.) Registered October 15, series of debentures for £150,000, present issue £110,000; charged on Western Viscose Silk Mills, Barton Hill, Bristol, also general charge. *Nil July 12, 1928.

New Companies Registered

ALLIED RESEARCH AND DEVELOPMENT CO., LTD. Registered October 27. Nom. capital, £250 in 10s. shares. To own, maintain and manage, laboratories, works and other places, to carry out scientific and other research work, and to carry on the business of manufacturing, consulting, scientific, analytical, commercial and general chemists and druggists, etc. Directors: G. Hayden, Lavender Croft, Hitchin, Herts. S. F. Haydon, Holland House, Holland Road, Hornsey, N.8.

THE ANGLO-SCOTTISH COAL CARBONISATION TRUST, LTD. Registered as a "public" company on October 29. Nom. capital, £1,000 in 1s. shares. To acquire, explore, work and turn to account any mines, mining rights and metalliferous land in Great Britain, or elsewhere, to extract, pump, draw, transport, purify and deal in petroleum and other mineral oils, to raise, make merchantable and deal in coal and other minerals, to manufacture and deal in patent fuel, to manufacture chemicals, manures, dyes and gas, etc. A subscriber: J. G. Saunders, 179, Ferme Park Road, London, N.8.

THE BRITISH-NETHERLANDS ARTIFICIAL SILK CO., LTD., Trafalgar House, Waterloo Place, London, S.W.1. Registered as a public company on October 20. Nom. capital of £855,000 in 1,400,000 ordinary shares of 10s. each and 3,100,000 deferred shares of 1s. each. To adopt agreements (1) with the Kendal Syndicate, Ltd., for the purchase of a freehold factory and land at Wigton, Cumberland, together with the plant, machinery and fixtures thereon; (2) with J. F. Bell for the purchase of freehold land at Derby; and (3) an agreement with C. F. M. Verstynen for the purchase of patents and patent rights therein mentioned; and to carry on the business of manufacturers of fine grade artificial silk yarns by means of the Viscose Process or by any other process which it may be expedient to adopt, etc.

"CELLENOID," LTD. Registered October 23. Nom. capital, £100 in £1 shares. Manufacturers of, and workers in, celluloid, erinoid, celloid, or any other similar materials. Directors: W. H. Russon, Rosedale, Field Road, Bloxwich, Walsall; R. Henderson.

Australian I.C.I. Developments Interesting Coal Liquefaction Developments

MR. B. TODHUNTER, a director of the Imperial Chemical Industries, who is now in Australia, said, in a statement made at Sydney on Wednesday, that if Australia was to retain the fertility of the soils and the prosperity of the primary industries, abundant supplies of nitrogenous fertilisers must ultimately be required, not in substitution of, but in addition to superphosphates. The company was now considering the possibility of installing a plant for nitrogen production in Australia on a scale which would enable the demand to be met which must arise if farmers were to be able to obtain their requirements at profitable prices.

Dealing with the extraction of oil from coal, Mr. Todhunter stated that the company had already produced substantial quantities of satisfactory motor spirit from lignite at Yallourn, Victoria, where brown coal deposits were controlled by the Victorian State Electricity Commission. In this matter, he said, high capitalisation was necessary to instal a plant capable of producing a substantial proportion of Australia's requirements. Much ground must be covered before it could be said to be practicable to convert the results obtained by the pilot plant into commercial success. In order to secure reliable data, Imperial Chemical Industries had arranged to send to Australia a pilot plant capable of producing motor spirit on a semi-commercial scale. This plant was already under construction in England. The experimental work would probably entail the expenditure of £100,000. Mr. Todhunter also announced that the company were embarking on a comparatively large scale in Australia in secondary chemical industries

Production of Mica in Canada

SHIPMENTS of Canadian mica during 1927 totalled 2,738 tons valued at \$174,377, according to finally revised statistics just issued by the Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics at Ottawa. The production in 1926 was 2,545 tons worth \$229,204. Increases were recorded in 1927 in shipments of rough-cobbed, thumb-trimmed and scrap mica; a considerable decrease was reported in shipments of mica splittings. Rough-cobbed and thumb-trimmed mica exported amounted to 165 tons; splittings, 150 tons; and scrap and waste, 4,536 tons. The total value of Canadian mica exported during 1927 was \$326,846, which included shipments worth \$304,781 to the United States and \$21,035 to the United Kingdom. The 21 firms in operation during the year reported a capital investment of \$322,389. Salaried employees and wage-earners engaged in this industry totalled 168, and their combined earnings amounted to \$118,505. Fuel and electricity used during 1927 necessitated an expenditure of \$4,400. In addition to the firms engaged in the primary production of mica there were 4 firms engaged in the secondary occupation of trimming and splitting mica. Nine of these mica trimming shops were in operation during 1927. Production from this source was valued at \$285,555; employees numbered 479; salaries and wages reached \$119,002; and raw materials cost \$130,764.

Flotation of Coarse-Grained Ores

It has generally been held that for the treatment of ores by the flotation process, crushing to minus 65 mesh is required. This was the size limit of grains which experience seemed to indicate, when oils chiefly were used. Experimental work at the Moscow field office of the United States Bureau of Mines, Department of Commerce, shows that sands crushed to not nearly this degree of fineness can be readily floated. In some of the work at that station, as coarse as 20 mesh sands have been found amenable to flotation. Even coarse sands that expose at their surfaces very small specks of the floatable mineral may be lifted. This broadening of the field of flotation is due to the development in recent years of the "promoter" class of reagents. These substances so greatly increase the floatative vigour of a mineral that correspondingly larger grains may be lifted. Flotation is rapidly expanding into the size range of table concentration and the cost of crushing for flotation is gradually being reduced.

